5.13 VISUAL RESOURCES

The Project includes the construction, operation, maintenance, and abandonment of up to 850 megawatts (MW) of capacity by a solar power generating facility and its ancillary systems in two phases (Phase I: 500MW [approximately 5,838 acres]/Phase II 350MW [approximately 2,392 acres]). The Project will consist of up to approximately 34,000 SunCatchers. Construction is anticipated to occur over an approximate four-year period beginning in 2010 and ending in 2014. It is estimated that approximately an average of 400 construction and 180 long-term labor jobs will be required.

The Project is located in an undeveloped area of San Bernardino County, California approximately 37 miles east of Barstow, California and north of Interstate 40 (I-40) between approximately 1,925 to 3,050 feet above mean sea level. The Project is located primarily on Bureau of Land Management (BLM) land within the Barstow Field Office. Approval of the Project Right-of-Way (ROW) Grant Application (Form 299, Applications CACA 49539 and 49537) will result in the issuance of a ROW Grant Permit for use of federal lands administered by the BLM. The Project would require a plan amendment to the 1980 California Desert Conservation Area (CDCA) Plan.

The area where the Project would be constructed is primarily open, undeveloped land within the Mojave Desert. The Cady Mountain Wilderness Study Area (WSA) is located north of the Solar One site. The Pisgah Crater, within the BLM-designated Pisgah Area of Critical Environmental Concern (ACEC), is located south and east of the Project (south of I-40 by several miles). Several underground and above ground utilities traverse the area.

An approved interconnection letter from California Independent Service Operator (CAISO) has been issued for the Project. The associated System Impact Study (SIS) is located in Appendix H. The SIS indicates that additional upgrades to the Southern California Edison (SCE) Lugo-Pisgah No. 2 Transmission Line and upgrades at the SCE Pisgah Substation will be required for the full build out of the 850MW Project. Supplemental studies performed by SCE and CAISO indicate that capacity is available on the existing transmission system to accommodate less than the 850MW Project.

An on-site substation (i.e., Solar One Substation [approximately 3 acres]) will be constructed to deliver the electrical power generated by the Project to the SCE Pisgah Substation. Approximately twelve to fifteen 220kV transmission line structures (90 to 110 feet tall) would be required to make the interconnection from the Solar One Substation to the SCE Pisgah Substation. All of these structures would be constructed within the Project Site.

The Project will include a centrally located Main Services Complex (14.4 acres) that includes three SunCatcher assembly buildings, administrative offices, operations control room, maintenance facilities, and a water treatment complex including a water treatment structure, raw water storage tank, demineralized water storage tank, basins, and potable water tank.

Adjacent to the Main Services Complex, a 14-acre temporary construction laydown area will be developed and an approximately 6-acre construction laydown area will be provided adjacent to the Satellite Services Complex south of the Burlington Northern Santa Fe (BNSF) railroad. Two additional construction laydown areas (26 acres each) will be located at the south entrance off Hector Road and the other at the east entrance just north of the SCE Pisgah Substation.

Temporary construction site access would be provided off of I-40 beginning east of the SCE Pisgah Substation and would traverse approximately 3.5 miles across the Pisgah ACEC requiring an approximate 30-foot ROW. Long-term permanent access would be provided by a bridge over the BSNF railroad along Hector Road north of I-40. Equipment may be transported during construction via trucks and/or rail car (through the construction of a siding), that would be located on the north side of BNSF railroad and east of Hector Road or as authorized by BNSF.

Water would be provided via a groundwater well located on a portion of the BLM ROW grant north of the Main Services Complex and transported through an underground pipeline. The expected average well water consumption for the Project during construction is approximately 50 acre-feet per year. Under normal operation (inclusive of mirror cleaning, dust control, and potable water usage), water required will be approximately 36.2 acre-feet per year. Emergency water may be trucked in from local municipalities.

This section discusses the potential for the construction, operation, maintenance, and decommissioning of the) Project and its ancillary systems to cause significant effects to aesthetic values within the Project vicinity. The section addresses the inventory of existing visual resources of the affected environment, the assessment of the environmental consequences of the Project on visual resources, and the laws, ordinances, regulations, and standards (LORS) pertaining to the aesthetic effects of the Project related to the natural setting.

The visual resource analysis was conducted in conformance with California Energy Commission (CEC) guidelines for the inventory and assessment of visual effects for an Application for Certification (AFC). The CEC guidelines, in turn, comply with the California Environmental Quality Act (CEQA) documentation requirements, summarized in Section 5.13.2, Environmental Consequences. The study methods used (described in more detail in the inventory and effect assessment sections below) were based on those established by the Bureau of Land Management (BLM), Visual Resource Management (VRM) Inventory and Contrast Rating System (BLM 1986), and the Federal Highway Administration (FHWA) Visual Impact Assessment (FHWA 1981), and previous methodologies used in other CEC studies and other energy related projects. Also, the methodology has been tailored to meet the specific issues and regulatory requirements associated with the Project.

5.13.1 Affected Environment

This section describes the inventory of visual resources within the vicinity of the Project. A description of the regional landscape setting, the anticipated visual sphere of influence (VSOI) of the Project, and the inventory methods and results are included.

5.13.1.1 Regional Landscape Setting

The Project Site is located within the West Mojave Planning Area of the BLM, and unincorporated areas of eastern San Bernardino County. Nearby communities include Newberry Springs, Daggett, and Barstow. Newberry Springs is located 13 miles west of the Project and is a small town of approximately 4,500. Daggett is a small town of residences with few commercial parcels and an airport, located approximately 15 miles west of the Project Site. The population of Daggett is approximately 250 people spread out across the desert. The City of Barstow is located approximately 37 miles west of the site and has an approximate population of

24,000 people. Areas between the Barstow and the Project Area contain several power plants, including a power tower solar design and a solar trough facility, both of which are located about 20 miles west of the Project Site. The solar trough facility is a Solar Electricity Generating Systems (SEGS) design, operated by Sunray Energy, Inc. The power tower is a Heliostat design that was decommissioned in 1999 and is now used as a research facility, operated by University of California at Davis.

The majority of the public land surrounding the Project Site is currently administered by the BLM and is managed as part of the CDCA, and the West Mojave Plan Amendment. Under the CDCA, the land is designated as Multiple Use Class Moderate (M) use open space. The BLM lands in the local area (radius 10 miles) offer some recreational opportunities including limited off-highway vehicle (OHV) areas and camping, but mostly consist of resource conservation areas and study areas.

The surrounding areas are zoned Resource Conservation (RC) land use by San Bernardino County; however, a few areas to the west and east of the site are utilized for low-density residential land use. No agricultural lands are located within the local area.

From a regional perspective the landscape is mainly undeveloped desert within the Mojave Valley. The general area is characterized as relatively flat desert allowing for open, expansive views of the Cady Mountains to the north and Ord-Rodman Mountains to the south. Although the mountains are not particularly high, they are an effective visual barrier between each of the regions they define. The open views of the Cady Mountains to the north and the Mojave Plain stretching to the east are spotted with dry shrubs and divided by washes. The Barstow region consists mainly of low-lying desert terrain. The climate is extremely dry with hot summers and mild winters (characteristic of a high desert climate). Distant views from the Project Site consist mainly of mountains to the north and south and open plains to the east and the Pisgah ACEC west.

There are no significant water features that affect aesthetics within the local area.

5.13.1.2 Project Site

The Project Site consists of approximately 10,500 acres of open space located in rural San Bernardino County along I-40. The Project Site includes the solar farm site, construction lay-down areas, and overhead transmission lines extending from the northeast corner of the site to the southeast. Additionally a transmission line will be added to connect the Project power to the SCE Pisgah Substation (Pisgah Substation). The existing Pisgah Substation is visible adjacent to the Project Site and the I-40. The site and solar field layout are described in detail in Section 3.0, Project Description and Location.

The Project Site is largely vacant and currently consists of undesignated desert BLM-administered public lands. There are also some private parcels located within the Project Site. The Project Site slopes gently to the northeast with elevations ranging from approximately 1925 to 3050 feet above mean sea level. Topographic land features obscure views of the Project Site intermittently as travelers approach from the east and west along I-40, including areas of lower elevation and small rolling hills.

Adjacent land uses include the Pisgah Substation adjacent to the southeastern border of the Project Site, as well as a small number of rural residences. The nearest residence is located approximately 2 miles to the east of the Project Site; however, this is the only residence to the east within the VSOI of the Project (see Figure 5.13-1, Sensitive Visual Resources Visual Sphere of Influence Map). Five to seven miles to the west of the site there are some scattered residences with obstructed and partial views of the Project Site. Although few people live in the local area, the majority of viewers are anticipated to be travelers commuting to and from larger urban centers or to local industrial facilities.

Two 26-acre areas adjacent to and west of the Lugo-Pisgah transmission line and north of the BNSF ROW will be utilized during construction by the contractors and equipment suppliers to coordinate delivery of construction equipment and materials, for construction worker parking and processing, and for staging truck traffic exiting I-40 upon entry to the Project Site. A second 26-acre area in the southwest portion of the Project area, adjacent to I-40 will be utilized during construction by the contractors and equipment suppliers to coordinate delivery of construction equipment and materials, for construction worker parking and processing for work south of the BNSF railroad. The construction laydown areas are shown in Section 3.0, Project Description and Location.

The Project transmission system will require the construction of a 230-kilovolt (kV) substation. The 230kV single circuit transmission line for this Project will be a direct inter-tie between the Project and the SCE single-circuit transmission line to the Pisgah Substation. The interconnection transmission lines will be approximately 1 mile long. The proposed single-circuit transmission line will originate at the Solar One Substation and will follow a route due south to the BNSF Railway. It will then travel due east to the Pisgah-Lugo No. 2 Transmission Line at which point it will travel south to the Pisgah Substation. It will connect with the Solar One transmission line at the eastern boundary of the Project Site. The proposed 230kV-500kV SCE Pisgah Substation will be the point of interconnection for the Project to the SCE and CAISO controlled electrical grid. The 230kV single-circuit transmission line will be designed and constructed in accordance with applicable regulations.

The new 230kV single-circuit Transmission line from the Solar One Substation to the SCE Pisgah Substation utilize lattice steel towers Tubular steel poles are also a possible alternate design for the single-circuit interconnection transmission line to the SCE Pisgah Substation. Lattice steel towers or tubular steel poles will be 90 to 110 feet tall and will be designed to provide at least 30 feet of conductor-to-ground clearance at any point along the span. The steel structures will be designed for an average span length of 650 to 800 feet.

5.13.1.3 Visual Sphere of Influence

The VSOI for the Project (Figure 5.13-1, Sensitive Visual Resources Visual Sphere of Influence Map) represents the area within which the Project could be seen and potentially result in significant effects to visual resources. The furthest distance at which potentially significant visual effects could occur was identified as 5 miles. This distance was based primarily on the Project description regarding the potential visibility of major Project components (e.g., structures within the Main Services Complex as well as the boundary of the Project) from sensitive viewing areas (see Section 3.0, Project Description and Location, for a general layout of Project components and for site elevations). Also, the distance was based on the guidelines established in the USFS Visual Management System (USFS 1974, 1995). Based on USFS distance definitions, the Project was reviewed for sensitive resources within the view ranges noted below.

- **Foreground:** 0 to 0.5 mile from the observer's position. At this distance, the observer can view details of trees, shrubs, wildflowers, and animals.
- **Middleground:** 0.5 to 5 miles from the observer's position. At this distance, the observer can see forest stands, natural openings, masses of shrubs, and rock outcrops.
- **Background:** 5 miles to horizon from the observer's position. At this distance, the observer can view mountain peaks, ridgelines, and patterns of forest stands and openings.

Based on a 5-mile distance limit, the VSOI boundary was refined to account for local viewing conditions and primarily topographic screening. Computer viewshed analyses were conducted (using 30-meter-grid cell resolution, generated from 1:24,000 Digital Elevation Model [DEM] data from the United States Geological Survey [USGS]) to map the boundaries of the VSOI within the 5-mile limit. USGS DEM files were imported into an ArcView 9.2-based geographical information system (GIS) using the spatial analysis extension. The combined DEM was used to run viewshed analyses in Universal Transverse Mercator, Zone 11, North American Datum 83.

For the Project, the approximately 10,500-acre area (which includes the 8,230 Project Site as well as private land within the Project boundary) was used to run an existing viewshed map. The Main Services Complex, the facility site's tallest permanent structure, the SunCatcher units at a height of 40 feet, the perimeter/fence line for the entire site, and the 110-foot-tall transmission pole heights along the proposed transmission line route were input into the model and the viewshed model was rerun. The results represent a "typical" viewshed for the Project area.

In general, the Project Site is clearly visible from travelers on the BNSF railway, I-40 as well as many sections of U.S. Route 66US Route 66. Due to the number of travelers utilizing the railway and adjacent roadways, travelers would have the highest frequency of views. Traveler views will be short term and change as the traveler approaches, passes and leaves the Project area.

Additionally there are few nearby residents with distant views of the Project (within 5 miles). These residences will experience long term background views of the Project. One residence will experience a middle ground view of the Project (see Figure 5.13-15, KOP #3). Beyond the mapped VSOI, the Project would be either not visible due to topography/screening, or of such a small size in the background field of view that significant effects would not be expected.

The VSOI also takes into account the visibility of all proposed industrial development, substation and large transmission lines, as well as the visibility of the Project (e.g., the most visible components). Other variables affecting potential visibility of the Project include: orientation of the viewer, duration of view, atmospheric conditions, and lighting (daylight versus nighttime).

The VSOI was mapped to identify the maximum potential area for significant effects of the Project in views from visually sensitive areas. Within the VSOI, varying levels of Project visibility have been identified. The highest level of Project visibility exists when the viewer is adjacent to the Project Site, the viewer is permanent and stationary, and there is no screening. Conversely, the lowest level of visibility exists, for example, when the viewer is located at greater distances from the site, traveling at a high rate of speed, and in partially to fully screened conditions.

Sensitive viewing areas were identified and inventoried within the 5-mile radius of the Project Site. The identification of sensitive viewing areas within the VSOI was conducted through review of existing land use data, agency contacts, and during field reviews. The following is a representative list of sensitive viewing areas that were considered during the inventory:

- residential areas (e.g., the closest residences surrounding the site),
- travel routes: major roads or highways used primarily by origin/destination travelers and designated scenic roads (e.g., local residents, workers, and commuter travelers along I-40 and U.S. Route 66), BNSF Railroad, and aircraft using nearby airfields including the airport in Daggett, and
- parks, recreation areas, wildlife areas, visitor centers, and areas used for hiking, camping, picnicking, bicycling, and OHV use.

During field surveys conducted within the immediate Project vicinity, it was noted that few detached homes are present and have direct views to the Project Site. One detached residence exists within 5 miles of the site and has direct, unobstructed views of the Project. Approximately 5 other residences would have direct, while slightly obstructed views to the Project Site. There are topographic obstructions and/or vegetative screenings between these homes and the Project Site that minimize or completely eliminate current views to the site. In addition, there are 20 to 30 other detached residences within 10 miles of the site with no view of the site due to topographic variation and features. Residences further than 10 miles away may have views to the Project Site; however, these views are distant and partially obscured due to the presence of adjacent residences in the foreground, topographic features, and/or existing vegetative screening.

In addition to residential viewers, travelers along I-40 and U.S. Route 66 would have direct and immediate views to the site. Due to area topography, and the lack of vegetative screening adjacent to the interstate, with few exceptions, traveler views along I-40 are virtually unobstructed for over 20 miles in the vicinity of the site. Direct unobstructed traveler views from both the I-40 and U.S. Route 66 are available as the interstate approaches both the western

and eastern boundaries of the site. I-40 forms the southern boundary of the site for over 5 miles between the Hector Road exit and Pisgah Substation. Traffic flow road counts along I-40 indicate that a high number of travelers utilize the I-40 corridor through this area with approximately a 15,600 annual average daily traffic count. Average daily traffic counts along U.S. Route 66 are significantly less, and are estimated at 28.

Several open space resource conservation areas are located near or adjacent to the Project Site. These include the Cady Mountains Wilderness Study Area (WSA), the Pisgah Crater Area of Critical Environmental Concern (ACEC), the Ord-Rodman Desert Wildlife Management Area (DWMA) ACEC and the Kelso Dunes Desert Wilderness Area. Views to the site from within the Cady Mountains WSA are direct and immediate except where topography of washes obscures horizon line views. Also, the WSA is an open space sensitive resource area and considered to have potential for passive recreation activities (see Figure 5.13-13, Existing View from KOP #2). No formal camping has been established in this area and access is restricted to designated routes.

Levels of potential effect on sensitive viewing areas were established through an analysis of the following two primary components:

- effect susceptibility: the degree to which a sensitive viewpoint would be impacted by changes within its viewshed, and
- effect severity: the degree of change to the landscape created within a specific viewshed.

Character photos of the areas surrounding the Project Site (Figures 5.13-3 through 5.13-5) depict the existing visual environment of the viewing areas and sensitive visual resources within areas surrounding the Project. Some of these viewpoints may not have views to the Project; however, they have been included to help describe the scenic quality within the region. These photos also help the reader understand the general visual character of the surrounding area and the land uses within the region. The results of the viewshed analysis and the field photo survey indicated that most sensitive viewing areas within the VSOI were from those areas immediately adjacent to the Project Site (foreground viewers): at the Cady Mountains WSA, nearby residents, and travelers along I-40 and U.S. Route 66.

5.13.1.4 Visual Study Inventory Components

The following sections detail the visual study inventory components used in the assessment of potential effects. Three primary components inventoried were: (1) an evaluation of Scenic Quality; (2) consideration of existing VRM Class; and (3) the identification of sensitive viewing areas.

Scenic Quality Evaluation Forms (Figures 5.13-6 through 5.13-10) were developed for sensitive view areas within the VSOI. The values underlined in the Scenic Quality rating box on the forms illustrate the assigned values (H – high, M – moderate, or L – low) for each natural feature (e.g., landform, vegetation, water, etc.) or negative/positive cultural modification. The combined value of these elements is used to determine in which class the landscape should be characterized. The VRM system is designed to separate the existing landscape and the Project into their features and elements and to compare each part to the other to identify parts that are incompatible (BLM 1986). The resulting landscape classifications are presented below.

Scenic Quality

When evaluating Scenic Quality, both natural and manmade components within the VSOI were considered as they relate to either adding to or detracting from the overall landscape character within a specific setting. Scenic Quality levels are established by evaluating the distinctiveness and diversity of a particular landscape setting in relation to the following elements:

- **Landform** - Topography becomes more interesting as it gets steeper or more massive, or more severely or universally sculptured. Outstanding landforms may be monumental, as the Grand Canyon, the Sawtooth Mountain Range in Idaho, the Wrangell Mountain Range in Alaska, or they may be exceedingly artistic and subtle as certain badlands, pinnacles, arches, and other extraordinary formations.
- **Vegetation** - Give primary consideration to the variety of patterns, forms, and textures created by plant life. Consider short-lived displays when they are known to be recurring or spectacular. Consider also smaller scale vegetational features which add striking and intriguing detail elements to the landscape (e.g., gnarled or windbeaten trees, and Joshua trees).
- **Water -** That ingredient which adds movement or serenity to a scene. The degree to which water dominates the scene is the primary consideration in selecting the rating score.
- **Color** - Consider the overall color(s) of the basic components of the landscape (e.g., soil, rock, vegetation, etc.) as they appear during seasons or periods of high use. Key factors to use when rating "color" are variety, contrast, and harmony.
- **Adjacent Scenery** - Degree to which scenery outside the scenery unit being rated enhances the overall impression of the scenery within the rating unit. The distance which adjacent scenery will influence scenery within the rating unit will normally range from 0-5 miles, depending upon the characteristics of the topography, the vegetative cover, and other such factors. This factor is generally applied to units which would normally rate very low in score, but the influence of the adjacent unit would enhance the visual quality and raise the score.
- **Scarcity** - This factor provides an opportunity to give added importance to one or all of the scenic features that appear to be relatively unique or rare within one physiographic region. There may also be cases where a separate evaluation of each of the key factors does not give a true picture of the overall scenic quality of an area. Often it is a number of not so spectacular elements in the proper combination that produces the most pleasing and memorable scenery - the scarcity factor can be used to recognize this type of area and give it the added emphasis it needs.
- **Cultural Modifications** - Cultural modifications in the landform/water, vegetation, and addition of structures should be considered and may detract from the scenery in the form of a negative intrusion or complement or improve the scenic quality of a unit. Rate accordingly. The cultural modifications inventoried within a specific landscape setting can be defined as the extent to which natural features have been modified by human actions to the point of degrading the natural setting. The criteria listed below were used to evaluate degrees of modifications.

- **High:** The landscape character appears intact. Deviations are present but repeat form, line, color, texture, and patterns common to the landscape character so completely and at such a scale that they are not evident.
- **Moderate:** The landscape character appears slightly altered. Noticeable deviations remain visually subordinate to the landscape character being viewed.
- **Low:** The landscape character appears heavily altered. Deviations strongly dominate the landscape character. Deviations do not borrow from attributes such as size, shape, edge effects, vegetative type changes, or architectural styles within or outside the landscape being viewed.

The inventory and evaluation of the above elements assist with the characterization of Scenic Quality within the VSOI. In general, landscapes are characterized by three classes: A through C.

Class A

Areas have outstanding diversity or interest; characteristic features of landform, water, and vegetation are distinctive or unique in relation to the surrounding region. These areas contain considerable variety in form, line, color, and texture.

Class B

Areas have above-average diversity or interest, providing some variety in form, line, color, and texture. The natural features are not considered rare in the surrounding region but provide adequate visual diversity to be considered valuable.

Class C

Areas have minimal diversity or interest; representative natural features have limited variation in form, line, color, or texture in the context of the surrounding region. Discordant cultural modifications (e.g., substations, transmission lines, and other cultural modifications) can be highly noticeable, which can reduce the inherent value of the natural setting.

The VSOI for the Project area was characterized at the Class C level for Scenic Quality; however, Class B landscapes do exist in the Cady Mountains. While landscapes within the VSOI provide open/panoramic views that lack intense development, no landscapes were considered to have distinctive characteristics as defined by Class A levels. Most landscapes within the VSOI were identified as Class C or as landscapes lacking significant natural amenities.

VRM Management Classes

The RMP establishes how the public lands will be used and allocated for different purposes, and it is developed through public participation and collaboration. Visual values are considered throughout the RMP process, and the area's visual resources are assigned to management classes with established objectives. The VRM management Class for the Project area is Class III. The established objectives of each management class are presented below.

- **Class I:** The objective of this class is to preserve the existing character of the landscape. Changes to the landscape character should not be evident.

- **Class II:** The objective of this class is to retain the existing character of the landscape. Changes to the landscape character may attract slight attention but should be subordinate to the visual setting.
- **Class III:** The objective of this class is to partially retain the existing character of the landscape. Changes to the landscape character may begin to attract attention but should not dominate the visual setting.
- **Class IV:** The objective of this class is to allow for activities that modify the existing character of the landscape. Changes to the landscape character may attract attention and dominate the visual setting. However, these activities should minimize changes to the landscape where possible.

Viewer Sensitivity and Sensitive Viewing Areas

Viewer Sensitivity

While conducting this study, no attempt was made to model for varying levels of viewer concern with change in their landscape. Because of the difficulty in inventorying for every individual's sensitivity level, it was determined that all viewers may have a high level of concern related to changes occurring in landscapes within the VSOI. Generally, a viewer's concern level is associated with, but not limited to, the following factors:

- viewing location, orientation of view, and duration of view,
- activity in which the viewer may be engaged (e.g., driving, recreation activities, or bird watching),
- visual acuity related to the intensity of visual detail within a landscape setting,
- state of mind or attitude,
- preconceived expectations related to scenic quality, and
- inherent values related to scenic quality and familiarity within specific landscape settings.

Sensitive Viewing Areas

After discussions with CEC visual staff, and a review of surrounding land uses, it was determined that sensitive viewing areas within the VSOI consisted primarily of adjacent residences, travelers along I-40 and U.S. Route 66, and potential recreational users within the various resource conservation and open space areas near the Project Site. The nearest residence with direct views to the Project Site is located approximately 2 miles from the eastern boundary of the site. This residence has mid-ground-direct, unobstructed views to the Project.

I-40 and U.S. Route 66 both run along the southern border of the Project Site and views to the site are direct and immediate to the north from these roadways. I-40 and U.S. Route 66 run parallel in an east/west orientation adjacent to the southern boundary of the Project Site, and extend through the southern portion of the Project Area. Direct unobstructed traveler views are available as the highway approaches the southwestern and southeastern portions of the site.

I-40 is not a designated scenic highway by FHWA or California Department of Transportation standards. No other travel routes within the VSOI are designated as federal, state, or county scenic highways or travel routes subject to aesthetic management goals or objectives. Also, no action toward studying these roadways has taken place to date and no action is planned to occur within the next few years (correspondence with County staff).

The Cady Mountains WSA to the north is the closest sensitive resource area with potential recreational users to the Project Site. This area may be utilized by OHV users on designated routes, campers, and a few avid hikers on trails within the WSA area. Due to the flatness of the desert topography, potential recreational users within the WSA have open, expansive views to the Project Site. Views to the site from this location during recreational activities will most likely be intermittent as wash areas, canyons, and areas of lower elevation have obscured views, however views from the WSA recreational area are considered to include foreground, middle ground, and background views.

5.13.1.5 Inventory Results

Scenic Quality

The VSOI is composed primarily of Class C and Class B landscapes. This is due to the absence of distinctive natural amenities (e.g., diverse and distinctive natural elements) present within the VSOI. The Cady Mountains area to the north possesses a slightly higher degree of Scenic Quality because of the elevations in topography allowing large open expansive views into the Mojave Valley and the distinctive quality of the rocky landscape.

Within the VSOI, open expanses of desert lands create a general continuity of the visual setting. Varying cultural modifications were documented. Varying cultural modifications within the VSOI include, but are not limited to, scattered residences, storage buildings, and the existing SCE Pisgah Substation. Several transmission line corridors that support electricity transmission also traverse the landscape within the VSOI. I-40, U.S. Route 66, and the BNSF Railroad further modify the landscape. The vegetative pallet within undisturbed desert areas consists mainly of tan and gray sands, spotted by low-lying bushes, and scrubland trees. The BNSF Railroad, I-40/U.S. Route 66 transportation corridor, transmission lines, and Pisgah Substation stand out from the natural visual setting. Background views of the several large mountain ranges add variety within the background-viewing threshold.

Most landscapes inventoried within the VSOI can be classified as retaining primarily low to moderate scenic quality. In general, there is little development within the VSOI; however, the presence of manmade development is scattered throughout the area, including but not limited to the transportation corridor and transmission lines. Development in the area includes very few and scattered residences and structures, property fencing, and the nearby Pisgah Substation. Also, overhead 220-kV transmission lines and telephone lines traverse the WSA and stretch along the Project's eastern boundary and beyond. Areas adjacent to the Project Site were also generally identified as having low exiting scenic integrity levels (ESILs) due to the lack of color and topographical variation, vegetation, and overall lack of distinctiveness to the visual character in the area.

Key Observation Points

Key observation points (KOPs) are viewing locations chosen to be representative of the most visually sensitive areas that would view the Project (see Figures 5.13-11 through 5.13-20). The KOPs presented below were reviewed and approved by Paula David, Community Resources Supervisor of the Energy Resources Siting Office, CEC, and David Frink of the BLM Barstow field office. There are other, closer views of the Project Site that were considered for KOPs; however, after CEC consultation, the KOPs presented below were selected. Other views of the Project Site are presented in the Character Photos 1 through 6 (see Figures 5.13-3 through 5.13-5).

The inventory of KOPs included three components: (1) identification and photo-documentation of viewing areas and potential KOPs; (2) classification of visual sensitivity of KOPs; and (3) description of Project visibility from KOPs. KOPs were identified based on review of available land use data, field inspection, and discussion with CEC staff responsible for the evaluation of visual resources.

Viewer sensitivity is a measure of the degree of concern for change in the visual character of a landscape. Viewer sensitivity considers type of use, user attitude, volume of use, adjacent land use, visual quality, and special classifications. Three levels of viewer sensitivity (high, moderate, or low) were used to describe the sensitivity of viewers within the study area. High-sensitivity viewpoints identified in the study area include existing nearby residences and the WSA to the north. Moderate-sensitivity viewers identified in the study area consist of existing primary area roadway travelers along I-40 and U.S. Route 66.

The other mountain areas and other more distant open space/recreational users were identified as moderate-to-low sensitivity viewers due to the distance from the Project Site of those mountain ranges and the type of activities carried out in these more distant open space areas. Low-sensitivity viewers include industrial areas and are not evaluated in detail for this study because these areas are considered to be a compatible use with the Project and, therefore, would not result in significant visual effects. Industrial facilities in the area include nearby solar energy generation facilities, which are located more than 10 miles to the west of the Project Site. The main visual interest and/or draw for the area is essentially created by the open expanses of land and the panoramic view of desert and mountains; however, a persistent dust haze, characteristic of the air quality in the area, impairs clarity in distant views on windy days. Due to the open space designation for the BLM areas, the scenic quality from some nearby areas could be characterized as borderline Class B.

Visibility determines how the Project would be seen from a particular viewing area or KOP. The inventory of Project visibility documented the distance from the viewpoint to the Project. Perception of details (e.g., form, line, color, and texture) diminishes with increasing distance. The distance zones were: foreground (0 to 0.5 mile), middleground (0.5 to 5 miles), and background (beyond 5 miles). In addition, the inventory evaluated if views were open, partially screened (filtered), or screened (e.g., presence of hillside terrain, vegetation, and/or buildings).

Five sensitive viewing areas were identified as representative of viewers who would be most susceptible to visual effects within their viewshed as a result of the Project Site.

Sensitive Viewing Area and KOP #1

This image was taken from U.S. Route 66 to the south of the western edge of the Project Site, (see Figure 5.13-2, Aerial of Immediate Project Vicinity, and Figure 5.13-11, Existing View from KOP #1). As the area has foreground un-obscured views to the Project Site, it was chosen as a representative KOP. This view represents one of the "worst case" traveler user views from the south. The Project would be highly visible because of the flat, open viewing conditions from this location. However, since traveler views are dynamic and involve a duration component it is important to note that views of the Project from U.S. Route 66 along the southern Project boundary are intermittent and often blocked by the I-40 and topographical features. Additionally there are several power generation facilities located within a 15 minute drive to the west. Viewer sensitivity at this location is rated moderate to low, while viewer exposure is considered low due to the low traffic volumes at this location (ADT 28, see Section 5.11, Traffic and Transportation).

KOP #1 is typical of the visual environment, where the Project Site can be seen, along the U.S. Route 66. The existing viewshed from U.S. Route 66 as it traverses the length of the Project area has been modified. Development includes existing transmission and telephone lines/poles, and the nearby Pisgah substation. However, this viewing area is generally characterized by a flat, expansive desert form with very little texture and diversity, and no water features. There is little color variation (mainly from patches of sparse low-lying vegetation), and low contrast of generally mute desert tones. The horizon line is composed of distant mountain views to the north and south. To the east and west, the visual form consists of open desert valley. While SunCatchers will block foreground and midground views of the desert, background views to the Cady Mountains will not be obstructed.

The ESIL from this area can be characterized as Class C (see Figure 5.13-6, Scenic Quality Evaluation Form for Sensitive View Area and KOP #1).

Sensitive Viewing Area and KOP #2

This view represents a typical recreational view from the north. This is a view from the Cady Mountain WSA with direct midground views of the Project. This view exists approximately 1 mile from the northern perimeter of the Project Site (see also Figure 5.13-2, Aerial of Immediate Project Vicinity, and Figure 5.13-13, Existing View from KOP #2). Although there are areas of the WSA where views to the Project are obscured this view was chosen as a representative KOP of an unobscured view to the Project Site. The Project Site, in the absence of screening, would be highly visible throughout the WSA due to the elevated, open viewing conditions. Views from KOP #2, and similarly elevated locations within the WSA could potentially have the longest viewing duration of the Project as only experienced hikers and hunters are expected to utilize this area. Both recreational activities are likely to be of longer duration than roadway users, and the proximity of the site to this view would contribute to a high degree of sensitivity.

Flat open expanses of desert can be seen in the view foreground, mid-ground and background. The viewshed of KOP #2 has been modified with the presence of existing transmission lines, the existing Pisgah Substation, I-40 and U.S. Route 66, and the BNSF Railroad can be seen in the midground. These linear developments interrupt form, and color contrasts between the drab palette of desert wildlands and manmade developments. However, overall visual integrity and intactness is maintained in this view.

The ESIL from this area can be characterized as Class C (see Figure 5.13-7, Scenic Quality Evaluation Form for Sensitive View Area and KOP #2).

Sensitive Viewing Area and KOP #3

This image was taken from the nearest residence, with the most immediate views of the proposed Project and transmission lines to the southeast of the Project area (see Figure 5.13-2, Aerial of Immediate Project Vicinity, and Figure 5.13-15, Existing View from KOP #3). Though the residence is over a mile away from the Project boundary, the photo from this location represents "worst-case" residential views of the Project and linear transmission elements. Views from this residence are considered potentially sensitive due to the proximity of the Project and transmission lines to the residence. However, since there is only one residence at this location, and no other residences are located within sight of the project on the eastern side, the number of viewers is quite small. This lowers the level of consideration given to viewer response at this location, because while viewer sensitivity is high there is a low level of viewer exposure.

The most distinct visual characteristics here are distant views of the Cady Mountains. While SunCatchers will block foreground and midground views of the desert, background views to the Cady Mountains will not be blocked. The topography in the foreground and mid-ground of this view is flat and vegetation consists of shrubs and low to the ground plants. The Project and the proposed transmission lines as they join the Pisgah Substation would be highly visible to this residence. However, this view is considered to have a moderate to low degree of severity due to the existing presence of transmission lines in the area and the distance between the residence to the Project and proposed transmission lines.

The ESIL from this area can be characterized as Class C (see Figure 5.13-8, Scenic Quality Evaluation Form for Sensitive View Area and KOP #3).

Sensitive Viewing Area and KOP #4

This image was taken approximately adjacent to the Project Site along BNSF Railway westbound, near the Pisgah Substation. This image represents "worst-case" potential views of Amtrak railway travelers approaching the Project Site from the east (see Figure 5.13-2, Aerial of Immediate Project Vicinity, and Figure 5.13-17, Existing View from KOP #4). Travelers are at an elevated viewing position, and would virtually have a direct line-of-site to the Project Site and transmission lines. SunCatchers will block foreground and midground views of the desert, but background views to the Cady Mountains will not be blocked.

Sensitivity of this view is considered to be moderate due to the limited duration of the traveler view and the presence of existing infrastructure development. Another ameliorating factor is that the BNSF line will travel through vast areas of desert prior to a short viewing experience of the project. Additionally the presence of the Project, as well as other power generating facilities in the region may present opportunities for interested viewers to view renewable energy facilities. Viewer sensitivity and exposure are rated moderate.

The viewshed has been modified by transmission lines, and transportation infrastructure development. Cultural modifications including the Lugo-Pisgah substation and transmission corridor and BNSF Railway dominate the foreground of this view while background views include open expanses of desert and the Cady Mountains. This location allows for vast views to the horizon. The form is typical of the sparsely populated desert environment in this area and

lines are defined by the surrounding mountains and the distant flat horizon looking towards the northwest.

The ESIL from this area can be characterized as Class C (see Figure 5.13-9, Scenic Quality Evaluation Form for Sensitive View Area and KOP #4).

Sensitive Viewing Area and KOP #5

This image was taken from eastbound I-40, immediately south of the site one mile west of the SCE Pisgah Substation. This KOP represents a "worst-case" potential eastbound I-40 traveler view from Barstow towards the town of Ludlow (see Figure 5.13-2, Aerial of Immediate Project Vicinity, and Figure 5.13-19, Existing View from KOP #5). This view illustrates the location from which the Project would be most visible to roadway travelers. Due to topography, travelers are at an elevated viewing position, and would be confronted with immediate views of the solar field. This view is within 100 yards of the SunCatchers. Currently views in this area include open expanses of desert. Travelers are likely to have a short (10 to 15 minute) viewing duration experience of the Project with few interruptions due to a few small hills that briefly block the view. Although the SunCatchers will block foreground and midground views of the desert, background views to the Cady Mountains will not be blocked. Viewer sensitivity is rated moderate to low, while viewer exposure is considered moderate (ADT 15,600 vehicles per day with 43 percent truck traffic).

The BNSF Railroad is apparent in the middleground of views from this location. The viewshed is currently dominated by views of the Cady Mountains and existing transmission towers. The surrounding visual environment varies as travelers proceed from the more populated areas to the west to the outlying desert areas that characterize the proposed site and areas east.

The ESIL from this area can be characterized as Class C (see Figure 5.13-10, Scenic Quality Evaluation Form for Sensitive View Area and KOP #5).

5.13.2 Environmental Consequences

5.13.2.1 Significance Criteria and Assessment Methodology

The visual resources study included the assessment of effects on Scenic Quality and sensitive viewing areas within the VSOI related to the construction, operation, maintenance, and long-term presence of the Project Site.

The consideration of significant visual effects was based predominantly on the requirements of CEQA. Appendix G of the CEQA Guidelines states that potential effects to visual resources would be significant if a Project results in:

- a substantial adverse effect on a scenic vista,
- substantial damage of scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings,
- substantial degradation of the existing visual character or quality of the site and its surroundings, and

- creation of a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

Also, the CEC requires that consideration be given to the following:

- compliance with LORS,
- level of viewshed alteration and ground form manipulation,
- regional effects to visual resources,
- magnitude of effect related to light and glare,
- magnitude of backlight scatter during nighttime hours, and
- level of sunlight reduction or increase in shadows in areas used by the public.

The matrix presented in Table 5.13-1, Visual Effect Significance Matrix – Sensitive Viewing Areas, aids in the assessment of visual effect significance.

Table 5.13-1
Visual Effect Significance Matrix – Sensitive Viewing Areas

Visual Effect Severity	High Susceptibility	Moderate Susceptibility	Low Susceptibility
High	Significant	Less than significant with mitigation	Less than significant effect
Moderate	Less than significant with mitigation	Less than significant effect	No effect
Low	Less than significant effect	No effect	No effect

Source: URS Corporation, 2008.

Visual Simulations

A comparison of existing views (KOP) with visual simulations, depicted in Figures 5.13-11 through 5.13-20 aided in verifying Project-related effects. The simulations served to present a representative sample of the existing landscape settings contained within the VSOI, as well as an illustration of how the Project may look from specific key viewing locations.

To ensure a high degree of visual accuracy in the visual simulations, computer-aided drafting and design (CADD) equipment, GIS, and the use of a global positioning system allow for life-size modeling within the computer. This translates to using real-world scale and coordinates to locate Project facilities, other site data, and the camera locations corresponding to three-dimensional (3D) simulation viewpoints.

A GIS site map is imported as a background reference. CADD drawings of proposed Project facilities are placed on top of the Project Site map in GIS. Locations of sensitive viewing areas are also input into GIS. The camera positioning information is then referenced to the 3D data set. The 3D massing models of both the proposed Project (including ancillary facilities) are generated in real-world coordinates, scaled, and input into GIS.

An electronic camera lens matches the camera lens that was actually used in the field. A Nikon 6.1 megapixels digital camera set to take a 19.2-millimeter lens image was used consistently

throughout the process. This lens setting selection allows for viewing of the computer-generated model in the same way that the Project would be viewed in the field.

Next, the photograph is imported into the 3D database and loaded as an environment within which the view of the 3D model is generated. To generate the correct view relative to the actual photograph, the electronic camera is placed at a location (within the computer) from where the photograph was taken. From there, the 3D wire frame model is displayed on top of the existing photo so that proper alignment, scale, angle, and distance can be verified. When all lines of the wire frame model exactly match the photograph, the camera target position is confirmed.

It should be noted that final simulations were created using CADD files obtained from the Project engineer to remain consistent with general Project development engineering. Once field KOP location photos and coordinates for photo locations were gathered, these were incorporated into the final simulation production. The processes described above relate to general simulation construction and are included for reader understanding of the procedures.

The visual simulations developed for the Project have been designed to be viewed 10 inches from the viewer's eye. This distance will portray the most realistic life-size image from the location of the sensitive viewing area.

Assessing Visual Effect Susceptibility on Sensitive Viewing Areas

As stated previously, in Section 5.13.1.2, Project Site, visual effect susceptibility is the degree to which a sensitive viewpoint would be impacted by changes within its viewshed. Following identification of the five most sensitive viewing areas within the VSOI, the degree of effect on each area was determined through the analysis of the components listed below.

- **Cultural Modifications:** The degree of existing disturbance within the natural setting.
- **Viewer Sensitivity:** All residential viewers were considered high sensitivity viewers, while recreational users and motorists are less sensitive (in this instance).
- **Project Visibility:** An assessment of the viewing angle, potential screening, lighting conditions, and time of day.
- **Viewer Exposure:** An assessment of the distance from the Project, number of viewers, and duration of views.

Table 5.13-2, Visual Effect Susceptibility – Sensitive Viewing Areas, illustrates the level of visual effect susceptibility anticipated for each sensitive viewing area based on an evaluation of the previously stated factors.

Table 5.13-2
Visual Effect Susceptibility – Sensitive Viewing Areas

Viewing Areas	Scenic Quality	Viewer Sensitivity	Project Visibility	Viewer Exposure	Visual Effect Susceptibility
Sensitive Viewing Area and KOP #1 (Figure 5.13-11, Figure 5.13-12, and Figure 5.13-2 for KOP location) – from unobscured view of eastbound U.S. Route 66 traveler	Low	Moderate/ Low	High	Moderate	**Moderate**
Sensitive Viewing Area and KOP #2 (Figure 5.13-13, Figure 5.13-14, and Figure 5.13-2 for KOP location) – from unobscured view of adjacent Cady Mountains WSA to the north.	Moderate	High	High	Low	**Moderate/ High**
Sensitive Viewing Area and KOP #3 (Figure 5.13-15, Figure 5.13-16, and Figure 5.13-2 for KOP location) – from unobscured front yard view of Project and transmission lines from residence to the east.	Low	High	Moderate	Low	**Moderate/ Low**
Sensitive Viewing Area and KOP #4 (Figure 5.13-17, 5.13-18, and Figure 5.13-2 for KOP location) – Amtrak traveler view from BNSF Railroad westbound, elevated approach near Pisgah Substation.	Low	Moderate	High	Moderate	**Moderate**
Sensitive Viewing Area and KOP #5 (Figure 5.13-19, Figure 5.13-20, and Figure 5.13-2 for KOP location) – traveler view from I-40 eastbound, immediately adjacent south of Project Site.	Low	Moderate/ Low	High	Moderate/ High	**Moderate**

Source: URS Corporation, 2008.
Notes:
I-40 = Interstate 40
KOP = key observation point
WSA = Wilderness Study Area

Assessing Visual Effect Severity on Sensitive Viewers

The severity of the effect (high to low) on sensitive viewers was assigned a severity level proportionate to the amount of anticipated change to the landscape created within a specific viewshed. The primary criteria used for assessing Project effects include:

Form: visual mass, bulk or shape of an object

Line: horizons, silhouettes, edges of areas; man-made development

Color: reflected hue (red, blue, yellow) and value (light and dark)

Texture: apparent coarseness of visual surface

Dominance: specific components in a scene may be dominant because of position, contrast, extent, or importance of their pattern elements. Apparent size relationships between landscape components and their surroundings; while overall size contributes, visual scale depends not only on overall size and position, but the patter elements of a landscape component.

Diversity: the number of pattern elements as well as the variety among them; landscapes in which pattern elements are intermixed appear more diverse than landscapes with distinct boundaries between types

Continuity: uninterrupted flow of pattern elements; maintenance of visual relationships between immediately connected or related landscape components or features

Table 5.13-3, Visual Effect Severity – Sensitive Viewing Areas, describes levels designated to each variable above as they relate to the degree of visual effect severity anticipated on representative sensitive viewing areas.

The final evaluation conducted in the effect assessment was the assignment of potential effect levels on representative sensitive viewing areas by combining viewer susceptibility and effect severity levels at key and characteristic viewing locations.

Table 5.13-3
Visual Effect Severity – Sensitive Viewing Areas

Viewing Areas	Form Contrast	Line Contrast	Color Contrast	Texture Contrast	Scale Dominance	Spatial Dominance	View Blockage	Night Lighting	Visual Effect Severity
Sensitive Viewing Area and KOP #1 (Figure 5.13-11, Figure 5.13-12, and Figure 5.13-2 for KOP location) – from unobscured view of eastbound U.S. Route 66 traveler	High	Moderate/ High	Moderate	Moderate/ High	Dominant	Dominant	Moderate	Moderate/ Low	**Moderate/ High**
Sensitive Viewing Area and KOP #2 (Figure 5.13-13, Figure 5.13-14, and Figure 5.13-2 for KOP location) – from unobscured view of adjacent Cady Mountains WSA to the north.	High	Moderate/ High	Moderate	Moderate/ High	Dominant	Dominant	Moderate/ High	Low	**Moderate/ High**
Sensitive Viewing Area and KOP #3 (Figure 5.13-15, Figure 5.13-16, and Figure 5.13-2 for KOP location) – from unobscured front yard view of Project and transmission lines from residence to the east.	High	Moderate	Moderate	Moderate	Co-Dominant	Co-Dominant	Moderate	Low	**Moderate**
Sensitive Viewing Area and KOP #4 (Figure 5.13-17, 5.13-18, and Figure 5.13-2 for KOP location) – traveler view from BNSF Railroad westbound, elevated approach near Pisgah Substation.	High	Moderate/ High	Moderate	Moderate/ High	Dominant	Dominant	Moderate/ High	Low	**Moderate/ High**

Table 5.13-3
Visual Effect Severity – Sensitive Viewing Areas

Viewing Areas	Form Contrast	Line Contrast	Color Contrast	Texture Contrast	Scale Dominance	Spatial Dominance	View Blockage	Night Lighting	Visual Effect Severity
Sensitive Viewing Area and KOP #5 (Figure 5.13-19, Figure 5.13-20, and Figure 5.13-2 for KOP location) – traveler view from I-40 eastbound, immediately adjacent south of Project Site.	High	Moderate/ High	Moderate	Moderate/ High	Dominant	Dominant	Moderate/ High	Moderate	**Moderate/ High**

Source: URS Corporation, 2008.
Notes:
I-40 = Interstate 40
KOP = key observation point
OHV = off-highway vehicle

5.13.2.2 Visual Effect Assessment Results

This section discusses the affected visual resources for the Project. A description of the potential effects on Scenic Quality and on sensitive viewers is provided. A detailed description of the Project is in Section 3.0, Project Description and Location. Table 5.13-4, Major Components, Structures, and Equipment, includes design characteristics of some of the more prominent features.

Table 5.13-4
Significant Structures and Equipment

Description	Quantity	Length (feet)	Width (feet)	Height (feet)
SunCatcher power generating system	34,000	38	40	38
Main Services Complex administration building	1	200	150	14
Main Services Complex maintenance building	1	180	250	44
Main SunCatcher assembly building[1]	3	211	170	78
Satellite Services Complex maintenance building		120	250	44
Well water storage tank, 175,000 gallons	1	40 diameter		20
Demineralized water tank, 17,000 gallons	2	18 diameter		10
Potable/Fire Water Tank, 175,000 gallons	1	40 diameter		20
230kV transmission line towers, double-circuit with upswept arms	12 to 15	--	32	90 to 110
Access bridge over the BNSF Railroad	Dimensions of bridge to be determined at a later date.			

Source: Stirling Energy Systems, Inc., 2008.
Notes:
**Includes structure height to provide electrical safety clearances to ground.
-- = not applicable
A = ampere (amp)
BIL = basic impulse level
INT = international
kV = kilovolt
kVA = kilovolt amp
kVAR = kilovolt amp reactive
MVAR = mega volt amp reactive
v = volts

Project features (due to height/size) related to the visual effect assessment.

Important Project details taken into account as part of the visual effect assessment are listed below.

- Permanent site access would be provided from Hector Road and I-40 via a new access roads and restrictive gates. Additionally a bridge will be constructed across the BNSF right-of-way.

[1] Assembly building may be relocated from the Main Services Complex to the Satellite Services Complex during Phase II

- Temporary access would be provided by the existing Pisgah Crater Road, and traverse 3.5 miles of the Pisgah ACEC.
- A security fence (a minimum 10-foot-high chain-link fence with three strands of barbed wire on top) will enclose the entire Project Site.
- The property is largely vacant and undisturbed except for unpaved OHV paths. No structures currently exist on-site.
- The Project would require necessary transmission lines to interconnect to the Lugo-Pisgah Transmission lines and Pisgah Substation. In Phase I of the Project, the overhead line would begin at the dead-end structure in the substation and would continue east and southeast to interconnect with the Lugo-Pisgah No.2 Transmission Line and Pisgah Substation. Approximately 1.0 mile of transmission line would be within the Project Site boundary, and 0.84 mile of the transmission line would be off-site. Between 13 to 16 new transmission towers and/or poles would be required. The Project transmission line would extend from the Solar One Substation south and east to the existing 500kV Southwest Lugo-Pisgah right-of-way (ROW) to the Pisgah Substation. See Section 3.0, Project Description and Location.
- Surrounding site development includes the Lugo-Pisgah Transmission ROW, property fencing, a large transmission line corridor, an existing substation, I-40, and U.S. Route 66.
- The property is relatively flat, sloping gently down to the southwest but with small hills to the west which partially obscures the Project Site from residences on the western edge.
- Due to the existing grade of the site, site preparation earthwork includes surface grading to create terracing across the Project Site.
- Selected areas would be covered with appropriate material, as conditions require (e.g., asphalt concrete or a soil binder for arterial road paving, and gravel and/or soil binders for other surfaces).

Direct Effects

The following sections describe direct effects related to the Project.

Visual Effect Significance on Scenic Quality

Visual effects to the surrounding areas are a direct result of the size and scale of the Project. The development will be a newly introduced, highly dominant feature of the landscape. The current open and expansive views existing in the area will not be occluded by the presence of the Project, however existing integrity and continuity of views will be newly defined for many miles of the landscape. Scenic Quality is currently moderate to low and the presence of the solar dishes will not affect visual quality to the extent that it will affect the character of the visual environment in this area. The rolling forms, distant horizon lines, and uniform textures of the desert will be significantly altered to the angular forms of structures and transmission lines, rows of SunCatchers, and edgy textures of industrial solar development. The drab browns, grays and tans of the desert will be altered to a lesser extent to the reflective, water-like surfaces of solar reflectors. The new visual environment will no longer evoke the desolate open space that it has

historically, but a modern center for the production of renewable energy. Significant impacts to area visual resources are anticipated.

The Project is expected to significantly alter the existing character of the site creating significant effects to the general Scenic Quality of the VSOI area as a whole. The Project would be highly visible from adjacent locations in the area. Given the large scale of the Project (approximately 8,230 acres), the lack of significant topographic features and the limited degree of existing landscape modification (e.g., I-40, a substation, transmission lines, and Railroad) within the VSOI, potentially significant effects on Scenic Quality are expected; however, landscapes inventoried within the VSOI are classified as retaining primarily moderate to low Scenic Quality. Also, activities at the Project Site would occur in areas previously disturbed due to OHV use and limited recreational activities and within areas classified as retaining moderate to low distinctive or diverse natural amenities or lacking substantial positive cultural modifications. Therefore, significant effects would occur relative to existing Scenic Quality.

It should be noted that the Project may also draw positive visual interest to the area. As one of the first and largest projects of its kind in California, the solar technology has the potential to become a tourist attraction, drawing visitors from the energy industry, environmental community, and government/political figures who seek the direct personal experience of progressive renewable energy solutions. Because of this, some viewers may see the Project as having a beneficial impact on the visual resources in the area. For example, since its development, the wind farm of approximately 4,000 wind turbine generators/windmills in the San Gorgonio Pass area (which includes portions of Palm Springs, Desert Hot Springs, and Coachella Valley) have become somewhat of a symbol of the area. The technology as well as the total size and number of wind turbines create a spectacle that attracts tourists and there are numerous companies that offer tours to view the area; however, before its development, the wind farm was seen as a potentially immitigable significant visual effect for travelers through the area.

Visual Effect Significance on Sensitive Viewing Areas

Figures 5.13-11 through 5.13-20, depicting existing and simulated views from each selected KOP, aided in verifying Project-related effects. The simulations served to present a representative sample of the existing landscape settings contained within the VSOI, as well as an illustration of how the Project may look from specific key viewing locations. They also aided in assessing visual effect significance. Table 5.13-2, Visual Effect Susceptibility – Sensitive Viewing Areas; Table 5.13-3, Visual Effect Severity – Sensitive Viewing Areas; and Table 5.13-5, Visual Effect Significance – Sensitive Viewing Areas, illustrate the visual effect susceptibility, severity, and resultant significance on sensitive viewing areas, respectively.

These five sensitive viewing areas were identified as representative of viewers who would be most susceptible to visual effect within the viewshed as a result of the Project. A description of potential effects for these areas is described below.

Sensitive Viewing Area and KOP #1

This KOP is located within to the south of the Project Site on U.S. Route 66 (see Figure 5.13-2, Aerial of Immediate Project Vicinity, and Figure 5.13-11, Existing View from KOP #1). The existing visual environment contains distant views of mountains and open desert. Middle ground views include open desert and transmission corridor development.

The Project would be highly visible due to the flat, open viewing conditions. KOP #1 will have unobstructed direct views to the Project and its structures which would contrast with the form, line, color and textures of the open desert. As shown in Figure 5.13-12, Simulated View from KOP #1, proposed structures would not extend beyond existing ridgelines created by distant mountains or obscure and/or block panoramic views. However, the size and scale of the Project is likely to be dominant in this view. While the viewshed has already been modified with the presence of existing transmission lines, the I-40, BNSF Railroad and a substation in the immediate vicinity, the impact severity is likely to be moderate to high.

While Project facilities would alter foreground views from this location, most viewers are likely to be traveling to distant destinations, and experiencing a variety of landscapes which would lower sensitivity. While viewer sensitivity is considered moderate to low, there is a moderate amount of traffic along this highway (15,600 average annual daily traffic), and therefore viewer exposure is likely to be moderate. Overall this contributes to a high severity of impact and a moderate level of susceptibility.

Table 5.13-5
Visual Effect Significance – Sensitive Viewing Areas

Viewing Areas	Description	Visual Effect Susceptibility	Visual Effect Severity	Visual Effect Significance
Sensitive Viewing Area and KOP #1 (Figure 5.13-11, Figure 5.13-12, and Figure 5.13-2 for KOP location) – from unobscured view of eastbound U.S. Route 66 traveler	This KOP location represents an unscreened view of the Project from travelers to the south. KOP #1 is located approximately 100 yards south of the Project Site. This KOP will have unobstructed direct views to the Project. This view is also consistent with longer viewing durations of the Project, as well as a moderate/high degree of severity because of the close distance. The Project, in the absence of screening, would be highly visible due to the flat, open viewing conditions. The Project would create a strong visual contrast to the existing setting and significantly alter foreground views from this area. However, it would not obscure distant views to surrounding mountains. It should be noted, the viewshed has been slightly modified with the presence of existing transmission lines, telephone poles/lines, and property fencing in the immediate vicinity.	Moderate	Moderate/ High	**Potentially Significant Impact**
Sensitive Viewing Area and KOP #2 (Figure 5.13-13, Figure 5.13-14, and Figure 5.13-2 for KOP location) – from unobscured view of adjacent Cady Mountains WSA to the north.	This KOP location represents the closest unscreened view of the Project from the Cady Mountains WSA. KOP #2 is located on the northern boundary of the Project Site. This view is consistent with longer viewing durations (i.e., from recreational views) of the Project. The Project, in the absence of screening, would be highly visible due to the elevated, open viewing conditions. This KOP will have unobstructed direct views to the Project; however, it should be noted, the viewshed has already been modified with the presence of existing transmission lines, the I-40, and BNSF Railroad in the immediate vicinity.	Moderate/ High	Moderate/ High	**Potentially Significant Impact**
Sensitive Viewing Area and KOP #3 (Figure 5.13-15, Figure 5.13-16, and Figure 5.13-2 for KOP location) – from unobscured front yard view of Project and transmission lines from residence to the east.	This KOP location represents the midground view of the Project and Project transmission lines from the nearest residence to the east. The Project and transmission line would create a significant change to the existing character of the visual environment. Existing transmission towers represent a co-dominant scale, form, and line contrast to the existing setting and the additional line would blend in with the existing structures. However, viewers from this residence are considered to have a moderate to low sensitivity and less-than-significant effects are expected.	Moderate/ Low	Moderate	**Less than Significant Impact**

Table 5.13-5
Visual Effect Significance – Sensitive Viewing Areas

Viewing Areas	Description	Visual Effect Susceptibility	Visual Effect Severity	Visual Effect Significance
Sensitive Viewing Area and KOP #4 (Figure 5.13-17, 5.13-18, and Figure 5.13-2 for KOP location) – traveler view from BNSF Railroad westbound, elevated approach near Pisgah Substation.	This KOP location represents the direct view to the Project for travelers on the BNSF Railroad. This KOP was selected due to the open space/sensitive resource area designation of the surrounding areas as well as the panoramic and elevated views of the Project area. This view is consistent with a moderate/high degree of severity due to dominance of the Project features that lie within foreground views of the Project area. The Project would create a strong visual contrast to the existing setting and significantly alter foreground views from this area. Conversely, the Project may evoke brief visual interest to a traveler who has been riding on the train for some time, having only viewed desert landscape at length.	Moderate	Moderate/ High	**Potentially Significant Impact**
Sensitive Viewing Area and KOP #5 (Figure 5.13-19, Figure 5.13-20, and Figure 5.13-2 for KOP location) – traveler view from I-40 eastbound, immediately adjacent south of Project Site.	This KOP location represents the closest unscreened view to the Project for travelers along the I-40. This KOP was selected due to the immediate and direct views of the Project area. This view is consistent with a moderate/high degree of severity due to dominance of the Project features that lie within foreground views of the Project area. The Project has the potential to create a significant visual effect to travelers within this area. These effects may be both positive and negative.	Moderate	Moderate/ High	**Potentially Significant Impact**

Source: URS Corporation, 2008.
Notes:
I-40 = Interstate 40
KOP = key observation point

Visual effect susceptibility from this location is characterized as moderate (see Table 5.13-2, Visual Effect Susceptibility – Sensitive Viewing Areas). Visual effect severity from this location is characterized as moderate/high (see Table 5.13-3, Visual Effect Severity – Sensitive Viewing Areas). Thereby, aesthetic effect significance from this location is classified as a potentially significant impact (see Table 5.13-5, Visual Effect Significance – Sensitive Viewing Areas). However, effects may be both positive and negative. Sensitive Viewing Area and KOP #2

This viewing area is representative of the wilderness area to the north of the Project Site (see Figure 5.13-2, Aerial of Immediate Project Vicinity, and Figure 5.13-13, Existing View from KOP #2). The visual environment contains distant views of mountains, and open desert expanse to the west and east. Background views include the Ord-Rodman Mountains and Pisgah ACEC. In the midground, the I-40 and BNSF Railroad appears to bisect the valley floor, and rolling hills can be seen in the foreground to the east and west of this KOP.

Existing views across the Project Site from this KOP virtually consist of an open expanse of land with panoramic views to distant mountains. This KOP will have unobstructed direct front views to the Project and its structures. The Project would be highly visible because of the elevated, open viewing conditions. The Project would create a strong visual contrast to the existing setting and significantly alter midground views from this view. However, the Project would not obscure distant/panoramic views of the mountains from this KOP (see Figure 5.13-14, Simulated View from KOP #2).

As stated, viewer sensitivity is a measure of the degree of concern for change in the visual character of a landscape and considers user attitude and adjacent land use. Recreational views are permanent and users are generally highly aware of changes to their immediate visual environment. Persons utilizing wilderness areas generally have higher expectations for the quality of the visual environment. In addition, potential recreational users are at an elevated viewing position, and would virtually have a direct line-of-site to the Project vicinity. This view is consistent with a moderate/high degree of susceptibility because, while the type of potential viewers (recreational) increases viewer sensitivity, and the distance to the site is small, the number of viewers is low and therefore exposure offsets sensitivity. Additionally the presence of other industrial features that could distract from views of the Project area is minimal, and overall visual quality is rated moderate. Thus, contingent on recreational user reaction to the Project, significant visual effects on these sensitive viewers due to the construction/operation of the Project may occur.

Visual effect susceptibility from this location is characterized as moderate/high (see Table 5.13-2, Visual Effect Susceptibility – Sensitive Viewing Areas). Visual effect severity from this location is characterized as moderate/high (see Table 5.13-3, Visual Effect Severity – Sensitive Viewing Areas). Thereby, aesthetic effect significance from this location is classified as potentially significant (see Table 5.13-5, Visual Effect Significance – Sensitive Viewing Areas).

Sensitive Viewing Area and KOP #3

The Project would be visible at a distance from a single residence to the east (see Figure 5.13-2, Aerial of Immediate Project Vicinity, and Figure 5.13-15, Existing View from KOP #3). The addition of Project facilities will alter the form, lines and texture of the landscape in the midground view to the west of this residence. As shown in Figure 5.13-16, Simulated View from KOP #3, the Project would create a significant change to the existing view towards the Project and transmission lines.

In terms of scale, form, and line contrast to the existing setting, the proposed facilities represent a relatively large change from existing conditions. However, the transmission lines running along the existing Lugo-Pisgah ROW are clearly visible from this residence currently. The visual environment of this area includes existing transmission and transportation related developments and there are no water features to the views. The current view quality is considered moderate to low and Project features will occur in the midground of the views available at this KOP.

Residents are considered sensitive as they are focused on their habitual surroundings and activities and have long viewing durations. However, the residence at KOP #3 is the only residence in this area and not representative of land use in this area, which is typified by undeveloped open space. Also, a persistent haze, characteristic of the air quality in the area, often impairs clarity in distant views. Therefore, viewer exposure is low.

The Project is in the midground of existing views and is likely to stand out from the existing landscape. The visual change represented by the Project, transmission lines and towers is significant. Visual effect severity from this location is characterized as moderate (see Table 5.13-3, Visual Effect Severity – Sensitive Viewing Areas). However due to the fact that only one residence exists at this location visual susceptibility from this location is characterized as moderate to low (see Table 5.13-2, Visual Effect Susceptibility – Sensitive Viewing Areas). Therefore, aesthetic effects to this KOP are expected to be less than significant (see Table 5.13-5, Visual Effect Significance – Sensitive Viewing Areas).

Sensitive Viewing Area and KOP #4

The BNSF Railroad crosses the Mojave Desert region from east to west of the Project area, and traveler experience of the Project along this route is likely to be a dynamic but relatively brief component of a much longer journey. The experience of the Project to a traveler would be considered to have distant, midground and close up views of the Project. However this KOP location is immediately adjacent to the Project and therefore views of the Project are a "worst-case" foreground view (see Figure 5.13-2, Aerial of Immediate Project Vicinity, and Figure 5.13-17, Existing View from KOP #4).

KOP #4 is located directly adjacent to the Project Site along the southeastern boundary. This view would have virtually direct, expansive line-of-sight views of the Project Site and vicinity which would increase in dominance as the traveler approaches the Project area. The middle ground views include the open desert, transmission lines, highway signs and improvements. Background views include the mountains to the north and southwest of the Project area.

The Project would become a more prominent feature as the traveler approaches the Project area. However, due to distance and the colors of the surrounding landscape, the contrast that the Project is likely to present, and the effect of the Project on the character of the visual

environment, the visual effect severity of this view is considered moderate to high. Conversely, the Project may evoke brief visual interest to a traveler who has been riding on the train for some time, having only viewed desert landscape at length.

As shown in Figure 5.13-18, Simulated View from KOP #4, the Project would create a distinct change to the existing view towards the site from the railroad representing a co-dominant scale, with a contrasting form and line contrast to the existing setting. The reflective properties of the major components comprising the Project (the SunCatchers) allow the Project to blend in with the horizon lines and minimize visual effect to background views. Project features appear smaller in the broad context of the Mojave Valley, but foreground experience of the Project is likely to be acute.

Visual effect severity from this location is characterized as moderate/high (see Table 5.13-3, Visual Effect Severity – Sensitive Viewing Areas). However, visual susceptibility from this location is characterized as moderate (see Table 5.13-2, Visual Effect Susceptibility – Sensitive Viewing Areas). Thereby, per Table 5.13-1, Visual Effect Significance Matrix – Sensitive Viewing Areas, aesthetic effect significance from this location has the potential to be significant (see Table 5.13-5, Visual Effect Significance – Sensitive Viewing Areas). However, effects may be both positive and negative. Mitigation measures may ameliorate the effects to the visual resources at this location to less than significant.

Sensitive Viewing Area and KOP #5

KOP #5 represents one of the closest and most imposing views of the Project of all KOPs (see Figure 5.13-2, Aerial of Immediate Project Vicinity, Figure 5.13-19, Existing View from KOP #5, and Figure 5.13-20, Simulated View from KOP #5). This view is from the eastbound lane of I-40 near the SCE Pisgah Substation. The Project Site occupies the entire foreground landscape directly to the north of the interstate. The existing visual environment currently includes views of open desert, distant mountains, and transmission infrastructure development.

I-40 has a high number of daily travelers (approximately 15,600 travelers/average annual daily traffic), and generally, travelers are considered less sensitive as they are focused on driving and have short viewing durations. While I-40 borders the southern boundary of the Project Site, it is not an officially designated state or local scenic highway or route. However, the proximity of the site to I-40 increases viewer sensitivity.

The effect of Project features on views from this stretch of interstate will be imposing and will block most of the view across the desert to the north, northwest, and northeast. Mountain views will be slightly obscured. Form, line and texture of the visual environment will change. The visual character of this area will change from open space to a regional center for industrial scale solar power production. This may have an alternate effect of spurring tourism to the area to view the Project; however, it is acknowledged that views from this KOP may change significantly. It is anticipate the public will view these changes in varying degrees. To some, the Project may detract from the desert environment. To others, it may be seen as a point of positive visual interest, either by introducing new scenery to break up a long drive, or to showcase new technology. Thus, while some may see positive visual impacts, others may see detrimental effects.

Visual effect susceptibility from this location is characterized as moderate (see Table 5.13-2, Visual Effect Susceptibility – Sensitive Viewing Areas). Visual effect severity from this area is characterized as moderate/high (see Table 5.13-3, Visual Effect Severity – Sensitive Viewing Areas). Therefore, Project implementation has the potential to cause significant effects to visual resources in this area (see Table 5.13-5, Visual Effect Significance – Sensitive Viewing Areas). However, effects may be both positive and negative.

Lighting

Currently, little nighttime lighting is produced within the VSOI and consists mainly of external lighting of residences in the area and vehicle headlights along the highway. While the Project may slightly add to existing lighting, the Project would not significantly increase the existing night lighting in the Project area. Overall, the addition of the Project is not anticipated to create significant night lighting effects from backscatter light and/or night lighting a nearby viewer may experience when looking toward the site.

Lighting will be required for safe and efficient operation of the Project and will be limited to the following areas:

- exterior area lighting will be limited to the Main Services Complex,
- sharp cut-off, low wattage lights at major intersections of on-site roadways,
- emergency/critical lighting, and
- construction laydown area lighting.

The lighting system is intended to provide personnel with illumination for Project operation under normal conditions, means of egress under emergency conditions, and emergency lighting to perform manual operations during a power outage of the normal power source. The proposed lighting system would be designed and installed to meet Occupational Safety and Health Administration minimum standards, and to offer maximum illumination of operating work areas while minimizing off-site illumination. Lighting will be directed on-site to avoid backscatter, and shielded from public view to the extent practicable. See Section 3.0, Project Description and Location, for a further description of lighting fixtures.

Under certain conditions during construction-related activities, slightly higher amounts of backscatter lighting may be apparent to viewers immediately adjacent to the Project Site. These lights protect construction workers during this phase of the Project. In addition, while heavy construction will be scheduled to occur between 0700 and 1900, Monday through Friday, additional hours may be necessary to make up schedule deficiencies or to complete critical construction activities. Some activities will continue 24 hours per day, seven days per week. These activities include, but are not limited to, SunCatcher assembly, refueling equipment, staging material for the following day's construction activities, quality assurance/quality control, and commissioning. On completion of construction, night lighting at the site will be substantially reduced and less noticeable to surrounding viewers; therefore, visual effects related to lighting for construction activities would be temporary. Although the visual impacts related to construction are considered temporary, due to duration and scale, they are potentially significant. Some mitigation of these effects is possible; however, overall the visual resources of the area will experience temporary adverse impacts.

Lighting design for the Project would be consistent with CEC lighting requirements and local LORS.

Federal Aviation Agency Advisory Circular 70/7460-1K requires that all airspace obstructions over 200 feet in height or in close proximity to an airfield have obstruction lighting. The tallest structures proposed on-site are the transmission towers at between 90 and 110 feet high. Since the transmission poles are below the 115 feet height limit for this part of San Bernardino County, and there is no airfield in close proximity to the site, the poles will not require obstruction lighting. Furthermore, as the proposed transmission poles will be immediately adjacent to the existing ROW, no effects to aircraft operation are expected.

Glint and Glare

As described in Section 3.0, Project Description and Location, SunCatchers focus the sun's rays on a receiver of the Project system, which is an insulated cavity used to produce energy, located approximately 12 feet above the reflectors for a maximum height of 45 feet. The SunCatchers are designed so that sun rays from the mirrors would be reflected directly at the receiver and not at surrounding viewers or overhead. Flat glass is attached to corrugated steel backing sheet that is supported by a weldment structure with the desired curvature.

The sun's position in the sky is dependent on the time of day as well as time of year. Because of the way SunCatchers are oriented within the solar field, the amount of rotation during operation each day is minimal, ranging through the course of the year from starting position to noon and then back to starting position (see Section 3.0, Project Description and Location). The SunCatchers do not track the sun in the east/west direction, but track based on sun angle above the horizon that varies with the season (higher in summer, lower in winter).

Glint and glare from the mirrors is not anticipated to be significant to residents, or travelers. Potential glint and glare effects to these sensitive viewers within the Project area are anticipated to be infrequent based on the position and orientation of the mirrors on-site. During final design, if design analysis indicates that significant glint and glare effects would occur, potential mitigation would be proposed.

KOP #5 represents traveler views immediately adjacent to the Project. The potential for glint and glare from the mirrors at this location is higher than at the other KOP locations. However, due to the orientation of the mirrors, it is not anticipated that any distracting, blinding, or hazardous glint and glare effects will occur at this KOP location. Significant impacts to visual resources at this KOP are most likely to be related to the scale of Project features and the total area covered by the Project, while impacts resulting from glint and glare at this location are expected to be less than significant.

Military Airfields

There are local military and civilian airfields located within the region and Mojave Valley, although none are located within 5 miles of the Project area. Aircraft utilizing nearby military airfields are unlikely to be impacted by glint and glare from the Project. Each SunCatcher is designed to focus light falling on it into a receiver positioned above it, thus limiting the potential for stray reflections. Views and/or potential glint and glare from the Project are anticipated to be similar to a body of water to pilots in aircraft flying over the site. As local airfields are more

than 5 miles from the Project Site, potential glint and glare from the solar reflectors is not expected to distract and/or affect pilots during landing or take-off operations. The conclusion of this analysis is supported by real-world experience under similar conditions at the Kramer Junction Solar Electric Generating Station located in Barstow, California. The Kramer Junction facility is located within the flight path of Edwards Air Force Base. According to the visual analysis prepared for the Carrizo Energy Solar Farm (07-AFC-08) CEC staff indicated that pilots flying into the base have not reported any glare distraction from the nearby solar facility impacting their flight/landing operations.

In addition, the AFC prepared for the Victorville 2 Hybrid Power Project (07-AFC-1), identified that the United States Air Force conducted overflights over an existing solar energy facility (the solar energy generating station power plant in the Mojave Desert at Harper Lake) to determine if the facility produced visual distractions for pilots. It was documented that no significant visual distractions were observed during the overflights.

Given CEC staff accounts and documentation reviewed within the Victorville 2 Hybrid Power Project AFC (07-AFC-1), it is not expected that the Project solar array would cause adverse effects to aviation operations at local military airfields.

Landscaping

Landscaping is included as part of the Project; however, a landscaping/screening plan has not been prepared and the extent and location of proposed landscaping is not known at this time. A Landscape/Screening Plan will be prepared during final Project design that may reduce potential visual effects.

Indirect and Construction-related Effects

The main construction laydown areas to the north of Hector Road and the Pisgah Substation will include construction laydown for the Project Site, staff parking, equipment storage, a fueling station, two 26-acre staging areas, and construction offices. Construction access to the Project Site will be from access roads joining Hector Road on the west.

Project Site preparation includes site grading and slight terracing (due to the slope of the site and existing washes) to accommodate the Project on the existing landscape; however, major cuts and fills are not anticipated. Excavation work will consist of the removal, storage, and/or disposal of earth, sand, gravel, vegetation, organic matter, loose rock, and debris to the lines and grades necessary for construction. The main construction laydown area is relatively flat and thus requires little grading.

Geotech fabric and gravel will be removed and shallow swales and/or depressions will be created for revegetation. Within the main construction laydown area, permanent crossings will be required along the access road, as shown in Section 3.0, Project Description and Location. Permanent crossings within the laydown area are low profile and are not expected to be visible from adjacent areas. Permanent crossings will consist of culverts able to support the large construction machinery associated with the Project. See also Section 3.0, Project Description and Location, for more information relating to crossings and earthwork.

The construction period is expected to last between 40 and 48 months. The workforce is expected to average roughly 400 construction workers, with 700 workers in the peak month. The workforce is expected to come mainly from the San Bernardino County area (see Section 5.10, Socioeconomics).

During the Project construction period, construction activities and construction materials, equipment, trucks, temporary structures, and vehicles, would be highly visible to surrounding areas due to the flat, open viewing conditions on the Project Site and construction laydown areas. Because the Project Site and laydown areas are largely undeveloped, such construction activities at the Project Site and within the laydown area will contrast significantly with the existing natural character of the area; however, construction activities within/adjacent to the existing transmission line ROW along the northern boundary of the site are not anticipated to contrast significantly with maintenance and other operational activities that occur periodically in this ROW.

The major source of effects to the visual environment from the Project is the construction and development of a spatially dominant industrial power facility. Visual changes associated with construction activities at both the Project Site and the construction laydown areas would create potentially significant visual effects to sensitive viewers within the Project vicinity; construction activities would be conducted over an approximately four-year period. Indirect effects associated with the construction, operation, and long-term presence of the Project and ancillary facilities may include effects associated with fugitive dust, night lighting, and the presence of construction and operation equipment. Construction activities will be conducted in a manner that minimizes (visible) dust emissions and light pollution.

The Project would be clearly visible from I-40 and would have an effect on the viewshed from the road. The form, line, and texture of the visual environment would change as a result of the Project. The visual character of the area would change from open space with some additional industrial activities, to a regional center for large-scale solar power production. The change could be perceived differently by different people. For some, the Project may detract from the desert environment, but for others, the Project may create positive visual interest. As one of the first large-scale projects of its kind in California, the solar technology has the potential to become a tourist attraction, drawing visitors from the energy industry, the environmental community, and the local community, including providing potential education opportunities and government/political figures who seek direct personal experience of progressive renewable energy solutions.

5.13.2.3 Conclusion Summary

Potential significant visual effects to recreational areas adjacent to the north may occur (represented by KOP #2). Significant visual changes are anticipated for the Cady Mountains WSA. Potentially significant effects may occur relative to the transportation corridors, including; I-40, U.S. Route 66 and BNSF Railroad (represented by KOPs #1, #4, and #5). These effects may be both positive and negative. Less than significant effects at the residence to the east with views of the Project and proposed transmission line (represented by KOP #3) are anticipated. Although the Project includes features that reduce visual effects from the construction/operation of the Project, potentially significant visual effects on adjacent sensitive recreational users and residential viewers may still occur.

For travelers along the BNSF Railroad, and to the majority of other sensitive viewers within the region, with the construction, operation, maintenance, or long-term presence of the Project Site, the Project has the potential to cause positive significant visual effects due to interest in renewable energy production.

Overall, the Project is expected to create a significant change to the existing Project site and visual environment surrounding the site.

5.13.3 Cumulative Effects

The areas within the VSOI are generally characterized by distant views of mountains and vast open expanses of desert. There is very little nearby development to the east or west, and the few small communities and other sparsely populated areas to the west of the Project Site are not within the VSOI. The size and scale of the Project in conjunction with any other project of its type, size, or scale, could potentially result in cumulative Project effects on the visual environment.

Currently there are applications for ROWs for solar and wind power facilities in the Project vicinity (see Section 5.18, Cumulative Impacts). The areas proposed for solar or wind power facility ROWs (see Figure 5.18-2, Pending BLM Applications Near Project Area) in the vicinity of the Project represent a large area of land running through the Mojave Valley. Although there are several projects of predominant size and scale proposed within the Project vicinity, there is not enough information available about their visual appearance to determine the extent of any significant cumulative effect that would be caused. If the ROW permits are granted and large-scale solar and wind power facilities are built, then there is the potential for significant impacts to the visual resources of the area resulting specifically from the cumulative effects of a succession of intensive development in an area that has historically been left to open space and recreation. However, since this area is considered to be comprised of Class c and Class B landscapes, it is best suited to solar power development.

Conversely, there may be positive cumulative impacts related to the development of these areas as a regional and/or national center for alternative renewable energy. Positive visual resource effects could draw tourists, students, and researchers to the area, and appeal to residents who are interested in working in the field of renewable energy.

The Project and other large scale power projects in the vicinity may result in significant cumulative effects to visual resources in the area. There are several proposed projects within the vicinity that will be clearly visible to each other. They are discussed in Section 5.18, Cumulative Impacts. However, the impacts to visual resources of these potential power generation projects are unknown at this time, and guidance on this matter is anticipated in a Programmatic Environmental Impact Statement Covering Renewable Energy Projects in the CDCA.

The remaining, non-power related projects within the VSOI include minor construction projects, such as manufactured and mobile home permits, mobile home foundations, carport additions, roof replacements, deck additions, and residential renovations.

All permitted projects within the nearby Project vicinity (approximately 10 miles) of the Project Site include manufactured and mobile home permits and/or mobile home foundations, or residential home permits (see Section 5.18, Cumulative Impacts). All other permitted projects

are located over 10 miles from the Project Site. For further discussion of cumulative effects, see Section 5.18, Cumulative Impacts.

5.13.4 Mitigation Measures

The Project design inherently includes mitigation measures. From a practical standpoint, the site location was chosen is because of its proximity to the existing Pisgah Substation, the existing transmission line system, and an open expanse of area with very little existing development that is comprised of Class C landscapes. Furthermore, the Project will present a uniform landscape and while the Project will create a substantial change to the visual character of the area, future viewers will see a landscape feature that is very large but composed of consistent features with a reflective quality reminiscent of a water feature or a mirage. This is not likely to clash with viewer expectations nor cause lamentation over the lost expanses of land which are replaced. Additionally, the Project has an aesthetic appeal of its own both as a symbol of responsible renewable energy production and energy independence, and as an example of technological advancement. It is probable that the aesthetics of the Project will appeal to many types of viewers who will include the beneficial results of the Project in their aesthetic judgments. It is also very probable that people will come solely to view the Project. Some travelers are likely to consider the Project an interesting feature that breaks up a monotonous desert drive. While it is acknowledged that viewers will have vastly differing opinions as to the aesthetics of the Project, it is possible that a good majority may view the project in a positive light that ameliorates potentially significant effects to a less than significant level.

A landscaping plan and fence will be included in the final design of the Project, and may lower effect severity through effective use of screening. Furthermore, a number of Project features have been designed to help minimize visual effects. These include, but are not limited to, shielding light sources and using non-reflective materials for Project components other than solar reflector mirrors (see Table 5.13-4, Major Components, Structures, and Equipment).

Although the Project includes features that reduce visual effects from the construction/operation of the Project, potentially significant visual effects on adjacent sensitive recreational users and residential viewers may still occur. Suggested VRMMs to reduce potentially significant visual effects to less than significant levels are provided below.

5.13.4.1 VRMM-1

Prepare a Conceptual Landscaping Plan at a 1:40 scale, per CEC requirements for screening purposes. The plan shall include information on the type of plant species proposed; their size, quantity, and spacing at planting; expected heights at five years and maturity; and expected growth rates. Proposed landscaping should also include:

- use of native limited height landscaping materials around Project perimeter to ensure proposed landscaping does not further obstruct views of distant hillsides, and
- suggested off-site planting on adjacent residential properties (if landowner is interested) to assist with screening.

5.13.4.2 VRMM-2

Use non-reflective perimeter fencing.

5.13.4.3 VRMM-3

Prepare a Lighting Mitigation Plan for CEC review/approval to include the following:

- design/install external lighting that incorporates commercially available fixture hoods/shielding, with light directed downward or toward the area to be illuminated,
- light fixtures shall not cause obtrusive spill light beyond the Project boundary,
- all lighting shall be of minimum necessary brightness consistent with operational safety and security, and
- direct lighting does not illuminate the nighttime sky.

5.13.4.4 VRMM-4

Use non-reflective or matted steel/metal surfaces on supporting structures:

- use matted and non-reflective desert colors for exterior surfaces of structures where possible, and
- use matted and non-reflective desert palette colors on supporting pedestals.

5.13.4.5 VRMM-5

Use temporary screening of construction and/or staging areas:

- use screening of construction and staging areas to minimize visual effects, and
- use adequate signage and safety marking of construction areas.

5.13.5 Compliance with LORS

Applicable visual resources LORS are summarized in Table 5.13-6, Summary of LORS – Visual Resources, and described below. The Project is consistent with all federal, State and local aesthetic LORS.

5.13.5.1 Federal

The Project is located on property under the jurisdiction of San Bernardino County; however, the Project Site is on BLM-administered public lands. VRM methodology is an effective assessment tool that categorizes effects based on changes to scenic quality, sensitivity levels, and distance zones. VRM guidelines were considered for this Project. These are all discussed in detail in Section 5.13.1, Affected Environment. The Project is consistent with all federal aesthetic LORS.

5.13.5.2 State

No State-designated scenic highways or highways eligible for designation were identified within the VSOI. Furthermore, no other area managed by the state was identified for which the Project would be required to adhere to aesthetic LORS; therefore, compliance with State aesthetic LORS is considered to be compliance with CEQA Guidelines.

5.13.5.3 Local

The Project is located on unincorporated land within San Bernardino County. Local LORS were only considered for San Bernardino County. The property is zoned Resource Conservation with a secondary zoning as open space area by San Bernardino County. Allowable uses within this zone include electricity generation, subject to the conditional use permit required by the specific use standards. Current use in the surrounding area includes a mixed bag of industrial use, open space, rural residential, and recreational use.

The San Bernardino County General Plan contains goals and policies relating specifically to minimizing effects to scenic areas and visual resources within the County. Also, the San Bernardino County General Plan (2006) has several objectives and policies outlined relating to the preservation of scenic resources.

Conformance with this policy will require Solar One to work with the County to conform with Conditional Use Permit requirements regarding architectural standards and landscape requirements.

Table 5.13-6, Summary of LORS – Visual Resources, provides a list of local LORS, as well as the section number in which the Project's conformance/applicability to these LORS is discussed.

The Project will conform to all applicable local LORS related to the preservation of areas identified as retaining high scenic value. Based on the inventory of Scenic Quality and ESILs, areas retaining high scenic value were not identified within the VSOI. Therefore, compliance with local aesthetic LORS will be maintained.

Table 5.13-6
Summary of LORS – Visual Resources

LORS	Requirements	Conformance Section	Administering Agency	Agency Contact
Federal Jurisdiction				
Visual Resource Manual	To manage public lands in a manner which will protect the quality of the scenic (visual) values of these lands.	Section 5.13.5.1	Bureau of Land Management	1
State Jurisdiction				
Application for Certification Requirements	Rules of Practice and Procedure and Power Plant site Certification Regulations, Appendix B.	See Data Adequacy Worksheet Section 5.13.5.2	California Energy Commission	2

Table 5.13-6
Summary of LORS – Visual Resources

LORS	Requirements	Conformance Section	Administering Agency	Agency Contact
State Scenic Highway Requirements	Requirements are applicable to State-designated scenic highways.	Section 5.13.5.2 There are none in the Project area	California Department of Transportation	N/A
Local Jurisdiction				
San Bernardino County General Plan, Land Use Element *Goal 7*	The distribution of land uses will be consistent with the maintenance of environmental quality, conservation of natural resources, and the preservation of open spaces.	Section 5.15.5.3	San Bernardino County Land Use Services Department	3
San Bernardino County General Plan, Conservation Element Goal 1	Maintain to the greatest extent possible natural resources that contribute to the quality of life within the county.	Sectiom 5.15.5.3	San Bernardino County Land Use Services Department	3
San Bernardino County General Plan, Conservation Element *Policy 1.2*	Establish a buffer between resources and developed areas, and ensure that low development densities and building controls are applied to protect the visual and natural qualities of these areas.	Section 5.13.5.3	San Bernardino County Land Use Services Department	3
San Bernardino County General Plan, Conservation Element *Policy 8.3*	Assist in efforts to develop alternative energy technologies that have minimum adverse effect on the environment, and explore and promote newer opportunities for the use of alternative energy sources.	Section 5.13.5.3	San Bernardino County Land Use Services Department	3
San Bernardino County General Plan, Conservation Element, Desert Region *Goal 1*	Preserve the unique environmental features and natural resources of the Desert Region, including native wildlife, vegetation, water and scenic vistas.	Section 5.13.5.3	San Bernardino County Land Use Services Department	3
San Bernardino County General Plan, Conservation Element, Desert Region *Policy 1.2*	Require future land development practices to be compatible with the existing topography and scenic vistas, and protect the natural vegetation.	Section 5.13.5.3	San Bernardino County Land Use Services Department	3

Table 5.13-6
Summary of LORS – Visual Resources

LORS	Requirements	Conformance Section	Administering Agency	Agency Contact
San Bernardino County General Plan, Conservation Element, Desert Region *Policy 1.10*	Protect scenic vistas where natural slope exceeds 15 percent by requiring building foundations for residential, non-residential and accessory structures to conform to the natural slope.	Section 5.13.5.3	San Bernardino County Land Use Services Department	3
San Bernardino County General Plan, Conservation Element, Desert Region *Goal 3*	Preserve the dark night sky as a natural resource in the Desert Region communities.	Section 5.13.5.3	San Bernardino County Land Use Services Department	3
San Bernardino County General Plan, Conservation Element, Desert Region *Policy 3.2*	All outdoor lighting, including street lighting shall be provided in accordance with the Night Sky Protection Ordinance and shall only be provided as necessary to meet safety standards.	Section 5.13.5.3	San Bernardino County Land Use Services Department	3
San Bernardino County General Plan, Open Space Element *Goal 4*	Preserve and protect cultural resources throughout the county, including parks, areas of regional significance, and scenic, cultural and historic sites that contribute to a distinctive visual experience for visitors and residents	Section 5.13.5.3	San Bernardino County Land Use Services Department	3
San Bernardino County General Plan, Open Space Element *Goal 5*	Maintain and enhance the visual character of scenic routes in the County.	Section 5.13.5.3	San Bernardino County Land Use Services Department	3
San Bernardino County General Plan, Open Space Element, Desert Region	No development shall be approved which would destroy or seriously diminish the visual quality of existing sand dunes.	Section 5.13.5.3	San Bernardino County Land Use Services Department	3
San Bernardino County Development Code 82.19.010 (a)	Protection of natural resources and to ensure future generations will have access to quality "natural" features.	Section 5.13.5.3	San Bernardino County Land Use Services Department	3
San Bernardino County Development Code 82.19.010 (b)	Preservation of scenic resources and additional opportunities for the public to enjoy these pleasing features	Section 5.13.5.3	San Bernardino County Land Use Services Department	3

Table 5.13-6
Summary of LORS – Visual Resources

LORS	Requirements	Conformance Section	Administering Agency	Agency Contact
San Bernardino County Development Code 89.19.040 (a-l)	Require that a land use proposed within a scenic area is evaluated based on several criteria including building and structure placement, access drives, roads, parking, utilities, grading, storage and signs.	Section 5.13.5.3	San Bernardino County Land Use Services Department	3

Source: URS Corporation, 2008.

Notes:

LORS = laws, ordinances, regulations, and standards
N/A = not applicable

5.13.5.4 Agencies and Agency Contacts

Agencies with jurisdiction to enforce LORS related to visual resources are shown in Table 5.13-7, Agency Contact List for LORS.

Table 5.13-7
Agency Contact List for LORS

No.	Agency	Contact	Address	Telephone
1	Bureau of Land Management Barstow Field Office	David Frink Wilderness Coordinator, Barstow Field Office	Bureau of Land Management Barstow Field Office 2601 Barstow Road Barstow, CA 92311 Phone: (760) 252-6000 Fax: (760) 252-6098	760-337-4400
2	California Energy Commission Energy Facilities Siting Division Community Resources Unit	Paula David, Supervisor, Community Resources	California Energy Commission Energy Facilities Siting - Environmental Office 1516 Ninth Street, MS 40 Sacramento, CA 95814-5504	916-654-4228
3	San Bernardino County Barstow Office	Land Use Services Department	301 East Mt. View Avenue Barstow, CA 92311	760-256-4750

Source: URS Corporation, 2008.
Note:
LORS = laws, ordinances, regulations, and standards

5.13.5.5 Permits Required and Permitting Schedule

Permits required pertaining to visual resources are shown in Table 5.13-8, Applicable Permits.

Table 5.13-8
Applicable Permits

Responsible Agency	Permit/Approval	Schedule
San Bernardino County	Conditional Use Permit	To be announced
Bureau of Land Management	Amendment to California Desert Conservation Area	12 months
California Energy Commission	Certification	12 months

Source: Discussions with Richard Cabanilla and James Minnick of San Bernardino County Department of Planning and Building, February 2008 through May 2008.

References

Application for Certification for Victorville 2 Hybrid Power Project (07-AFC-1). 2007. February.

Application for Certification for Victorville 2 Hybrid Power Project (07-AFC-1). 2007. Volume III Data Adequacy Supplement. April 6.

Bain, G.D. n.d. Images of the California Environment http://geogweb.berkeley.edu/GeoImages/BainCalif/subjects/EnergySolarWind.html. site accessed on 27 August 2007.

BLM (Bureau of Land Management). 1986. Visual Resource Management Inventory and Contrast Rating System.

Caltrans (California Department of Transportation). 1992. AFC, p. 5.9-1.

_____. Website – California Scenic Highway Mapping System: List of Eligible and Officially Designated Routes for San Bernardino County. 2008.

Carrizo Energy Solar Farm, Power Project Licensing Case (Application for Certification), 07-AFC-08.

CEC (California Energy Commission). 2008. Rules of Practice and Procedure and Plant site Certification Regulations.

California Energy Commission, Commission Decision Cosumes Power Plant Project Application for Certification (01-AFC-19) Sacramento County. September 2003.

California Energy Commission, Systems Assessment and Facilities Siting Division, Community Resources Unit, personal correspondence with Paula David. April and May, 2008.

FHWA (Federal Highway Administration). 1981. Visual Impact Assessment Methodology.

San Bernardino County General Plan. 2007.

Palm Springs Wind Energy. http://www.palmsprings.com/services/wind1.html. site accessed August 2007.

Stantec Consulting, Inc. 2008. Conceptual engineering, hydrology studies, surveying observations, and research.

USFS (United States Forest Service). 1974, updated 1995. Visual Management System.

USFS (United States Fish and Wildlife Service). 1995. Landscape Aesthetics – A Handbook for Scenery Management. USDA Handbook.

URS Corporation. 2008. Field work, observations, research, and modeling.

Windmill Tours, Palm Springs California, http://www.windmilltours.com/info.htm. site accessed on August 2007.

Adequacy Issue:	Adequate		Inadequate		**DATA ADEQUACY WORKSHEET**		Revision No.		Date	
Technical Area:	**Visual Resources**				Project:	SES Solar One			Technical Staff:	
Project Manager:					Docket:				Technical Senior:	
SITING REGULATIONS	**INFORMATION**				**AFC PAGE NUMBER AND SECTION NUMBER**		**ADEQUATE YES OR NO**		**INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS**	
Appendix B (g) (1)	...provide a discussion of the existing site conditions, the expected direct, indirect and cumulative impacts due to the construction, operation and maintenance of the project, the measures proposed to mitigate adverse environmental impacts of the project, the effectiveness of the proposed measures, and any monitoring plans proposed to verify the effectiveness of the mitigation.				Section 5.13.1.1 Section 5.13.1.2 Section 5.13.1.3 Section 5.13.1.4 Section 5.13.1.5 Section 5.13.2.1 Section 5.13.2.2 Section 5.13.3 Section 5.13.4					
Appendix B (g) (6) (A)	Descriptions of the existing visual setting of the vicinity of the project, the region that can be seen from the vicinity of the project, and the proposed Project Site. Include:				Section 5.13.1.1 Section 5.13.1.2 Section 5.13.2.2					
Appendix B (g) (6) (A) (i)	Topographic maps at a scale of 1:24,000 of the areas from which the project may be seen, identification of the view areas most sensitive to the potential visual impacts of the project, and the locations where photographs were taken for (g)(6)(E);				Figure 5.13-1					
Appendix B (g) (6) (A) (ii)	Elevations of any existing structures on the site; and				N/A					
Appendix B (g) (6) (A) (iii)	The visual properties of the topography, vegetation, and any modifications to the landscape as a result of human activities.				Section 5.13.1.2 Section 5.13.1.3 Section 5.13.1.5 Section 5.13.2.2					
Appendix B (g) (6) (B)	An assessment of the visual quality of those areas that will be impacted by the proposed project.				Section 5.13.1.5 Section 5.13.2.1 Section 5.13.2.2					

Adequacy Issue:	Adequate		Inadequate		**DATA ADEQUACY WORKSHEET**		Revision No.		Date	
Technical Area:	**Visual Resources**				Project:	SES Solar One			Technical Staff:	
Project Manager:					Docket:				Technical Senior:	
SITING REGULATIONS	**INFORMATION**				**AFC PAGE NUMBER AND SECTION NUMBER**		**ADEQUATE YES OR NO**		**INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS**	
Appendix B (g) (6) (C)	After discussions with staff and community residents who live in close proximity to the proposed project, identify the scenic corridors and any visually sensitive areas potentially affected by the proposed project, including recreational and residential areas. Indicate the approximate number of people using each of these sensitive areas and the estimated number of residences with views of the project. For purposes of this section, a scenic corridor is that area of land with scenic natural beauty, adjacent to and visible from a linear feature, such as a road, or river.				Section 5.13.1.1 Section 5.13.1.2 Section 5.13.1.3 Section 5.13.1.4 Section 5.13.1.5					
Appendix B (g) (6) (D)	A description of the dimensions, color, and material of each major visible component of the project.				Section 5.13.2.2 Table 5.13-4					
Appendix B (g) (6) (E)	Full-page color photographic reproductions of the existing site, and full-page color simulations of the proposed project in the existing setting from each location representative of the view areas most sensitive to the potential visual impacts of the project.				Figure 5.13-11 through Figure 5.13-20					
Appendix B (g) (6) (F)	An assessment of the visual impacts of the project, including light and glare, and visible plumes.				Section 5.13.2.2					

Adequacy Issue:	Adequate		Inadequate		**DATA ADEQUACY WORKSHEET**		Revision No.		Date	
Technical Area:	**Visual Resources**				Project:	SES Solar One			Technical Staff:	
Project Manager:					Docket:				Technical Senior:	
SITING REGULATIONS	**INFORMATION**				**AFC PAGE NUMBER AND SECTION NUMBER**		**ADEQUATE YES OR NO**		**INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS**	
Appendix B (h) (1) (A)	Tables which identify laws, regulations, ordinances, standards, adopted local, regional, state, and federal land use plans, and permits applicable to the proposed project, and a discussion of the applicability of each. The table or matrix shall explicitly reference pages in the application wherein conformance, with each law or standard during both construction and operation of the facility is discussed;				Table 5.13-6 Table 5.13-8					
Appendix B (h) (1) (B)	Tables which identify each agency with jurisdiction to issue applicable permits and approvals or to enforce identified laws, regulations, standards, and adopted local, regional, state and federal land use plans, and agencies which would have permit approval or enforcement authority, but for the exclusive authority of the commission to certify sites and related facilities.				Table 5.13-8					
Appendix B (h) (2)	A discussion of the conformity of the project with the requirements listed in subsection (h)(1)(A).				Section 5.13.5.1 Section 5.13.5.2 Section 5.13.5.3 Table 5.13-6					
Appendix B (h) (3)	The name, title, phone number, and address, if known, of an official within each agency who will serve as a contact person for the agency.				Table 5.13-7					
Appendix B (h) (4)	A schedule indicating when permits outside the authority of the commission will be obtained and the steps the applicant has taken or plans to take to obtain such permits.				Table 5.13-8					

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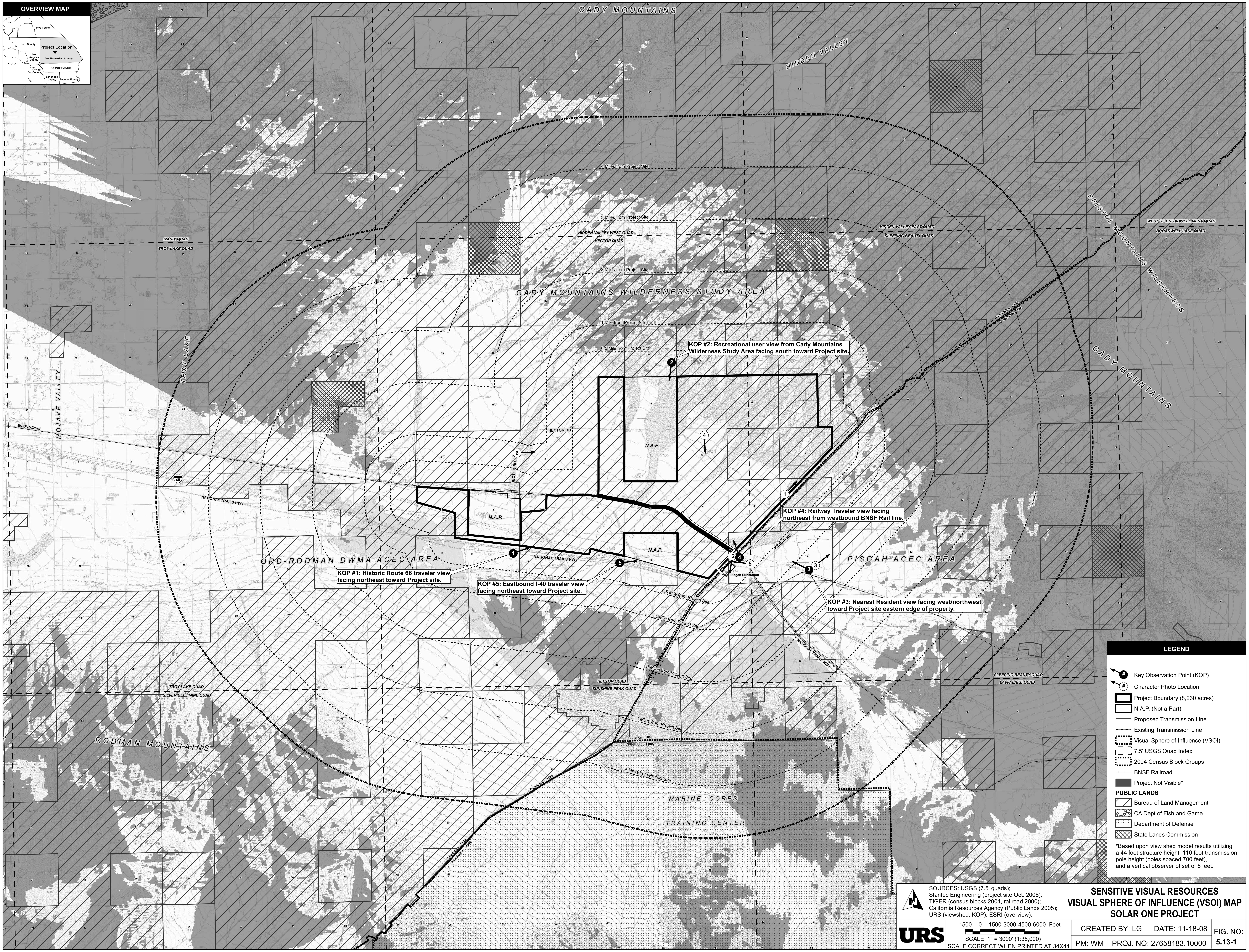

OVERVIEW MAP
Inyo County
Kern County
Project Location
San Bernardino County
Los Angeles County
Orange County
Riverside County
San Diego County
Imperial County
CADY MOUNTAINS
HIDDEN VALLEY
BRISTOL MOUNTAINS WILDERNESS
CADY MOUNTAINS WILDERNESS STUDY AREA
TROY LAKE
MOJAVE VALLEY
MANIX QUAD
TROY LAKE QUAD
HIDDEN VALLEY WEST QUAD
HECTOR QUAD
HIDDEN VALLEY EAST QUAD
SLEEPING BEAUTY QUAD
WEST OF BROADWELL MESA QUAD
BROADWELL LAKE QUAD
SILVER BELL MINE QUAD
SUNSHINE PEAK QUAD
LAVIC LAKE QUAD
4 Miles from Project Site
3 Miles from Project Site
2 Miles from Project Site
1 Mile from Project Site
0.5 Mile from Project Site
BNSF Railroad
NATIONAL TRAILS HWY
HECTOR RD
PISGAH RD
Pisgah Substation
N.A.P.
ORD-RODMAN DWMA ACEC AREA
PISGAH ACEC AREA
RODMAN MOUNTAINS
MARINE CORPS
TRAINING CENTER
Population: 1138
Population: 166
Population: 14090
KOP #1: Historic Route 66 traveler view facing northeast toward Project site.
KOP #2: Recreational user view from Cady Mountains Wilderness Study Area facing south toward Project site.
KOP #3: Nearest Resident view facing west/northwest toward Project site eastern edge of property.
KOP #4: Railway Traveler view facing northeast from westbound BNSF Rail line.
KOP #5: Eastbound I-40 traveler view facing northeast toward Project site.
LEGEND
Key Observation Point (KOP)
Character Photo Location
Project Boundary (8,230 acres)
N.A.P. (Not a Part)
Proposed Transmission Line
Existing Transmission Line
Visual Sphere of Influence (VSOI)
7.5' USGS Quad Index
2004 Census Block Groups
BNSF Railroad
Project Not Visible*
PUBLIC LANDS
Bureau of Land Management
CA Dept of Fish and Game
Department of Defense
State Lands Commission
*Based upon view shed model results utilizing a 44 foot structure height, 110 foot transmission pole height (poles spaced 700 feet), and a vertical observer offset of 6 feet.
1500 0 1500 3000 4500 6000 Feet
SCALE: 1" = 3000' (1:36,000)
SCALE CORRECT WHEN PRINTED AT 34X44

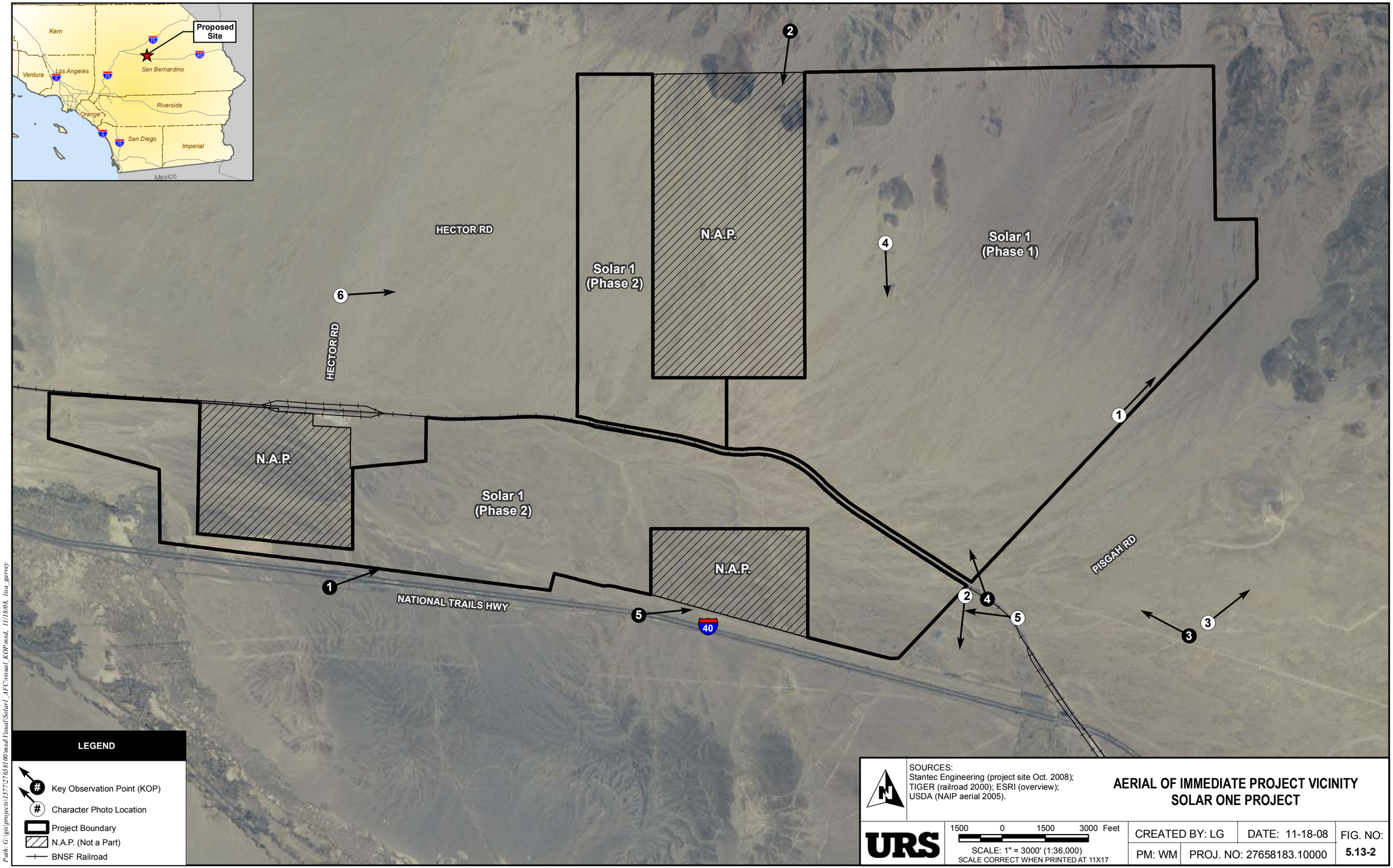
SOURCES: USGS (7.5' quads); Stantec Engineering (project site Oct. 2008); TIGER (census blocks 2004, railroad 2000); California Resources Agency (Public Lands 2005); URS (viewshed, KOP); ESRI (overview).

SENSITIVE VISUAL RESOURCES VISUAL SPHERE OF INFLUENCE (VSOI) MAP SOLAR ONE PROJECT

URS

CREATED BY: LG | DATE: 11-18-08 | PM: WM | PROJ. NO: 27658183.10000

FIG. NO: 5.13-1



LEGEND

- Key Observation Point (KOP)
- Character Photo Location
- Project Boundary
- N.A.P. (Not a Part)
- BNSF Railroad

SOURCES:
Stantec Engineering (project site Oct. 2008);
TIGER (railroad 2000); ESRI (overview);
USDA (NAIP aerial 2005).

AERIAL OF IMMEDIATE PROJECT VICINITY
SOLAR ONE PROJECT

URS

1500 0 1500 3000 Feet
SCALE: 1" = 3000' (1:36,000)
SCALE CORRECT WHEN PRINTED AT 11X17

CREATED BY: LG	DATE: 11-18-08	FIG. NO:
PM: WM	PROJ. NO: 27658183.10000	5.13-2

Path: G:\gis\projects\1577\27658100\mxd\Visual\Solar1_AFC\visual_KOP.mxd, 11/18/08, lisa_garvey

Photo Location 1: View of existing transmission lines along eastern boundary of Project site (looking northeast)

Photo Location 2: View of existing transmission lines and SCE Pisgah Substation along eastern boundary of Project site (looking south)

CHARACTER PHOTOS OF PROJECT AREA
SOLAR ONE
(FIGURE 1 OF 3)

URS	NO SCALE	CREATED BY: AG	DATE: 11-14-08	FIG. NO: 5.13-3
		PM: WM	PROJ. NO: 27658183.10000	

Photo Location 3: View of closest residence to the Project site (approximately 2.0 miles east of site)

Photo Location 4: View of BNSF railroad (and train) which bisects the Project site (looking south from midsection of Phase I)

CHARACTER PHOTOS OF PROJECT AREA
SOLAR ONE
(FIGURE 2 OF 3)

URS	NO SCALE	CREATED BY: AG	DATE: 11-14-08	FIG. NO: 5.13-4
		PM: WM	PROJ. NO: 27658183.10000	

Photo Location 5: View of Project site from BNSF Railroad

Photo Location 6: View of Project site from Hector Road (approximately 1.5 miles west of site)

CHARACTER PHOTOS OF PROJECT AREA
SOLAR ONE
(FIGURE 3 OF 3)

URS	NO SCALE	CREATED BY: AG	DATE: 11-14-08	FIG. NO: 5.13-5
		PM: WM	PROJ. NO: 27658183.10000	

FIGURE 5.13-6
SCENIC QUALITY EVALUATION FORM FOR
SENSITIVE VIEW AREA AND KOP NO. 1

Landform	H (5)	H/M (4)	**M (3)**	M/L (2)	L (1)
Vegetation	H (5)	H/M (4)	M (3)	M/L (2)	**L (1)**
Water	H (5)	H/M (4)	M (3)	M/L (2)	**L (1)**
Color	H (5)	H/M (4)	M (3)	M/L (2)	**L (1)**
Adjacent Scenery	H (5)	H/M (4)	**M (3)**	M/L (2)	L (1)
Scarcity	H (5)	H/M (4)	**M (3)**	M/L (2)	L (1)
Modifications*	H (2)	H/M (1)	M (0)	**M/L (-2)**	L (-4)
Scenic Attractiveness Class C (10)					

Scenic Quality Classifications
A = 19 or more
B = 12 to 18
C = 11 or less

Note: Evaluation score is bold and underlined; H = High; M = Moderate; and L = Low
* Explains cultural modifications present in the landscape, ranging from negative intrusions (-4) to those that complement the scenic quality and promote visual harmony (2)

Narrative Landscape Description and Photograph: Sensitive Viewing Area and KOP #1 (Figure 5.13-11, Existing View from KOP #1, see also Figures 5.13-1 and 5.13-2, for KOP location (Figure 5.13-17, see also Figure 5.13-3 for KOP location)). KOP #1 is typical of the visual environment, with direct foreground views of the project, along the Route 66. The existing viewshed from Route 66 as it traverses the length of the Project area has been modified. Development includes existing transmission and telephone lines/poles, and the nearby Pisgah substation, rail and roadway improvements. However, this viewing area is generally characterized by a flat, expansive desert form with very little texture and diversity, and no water features. There is little color variation (mainly from patches of sparse low-lying vegetation), and low contrast of generally mute desert tones. The horizon line is composed of distant mountain views to the north and south. To the east and west, the visual form consists of open desert valley. This landscape is mildly interesting within its setting, but fairly common within the region. The scenic quality can be characterized as Class C.

FIGURE 5.13-7
SCENIC QUALITY EVALUATION FORM FOR
SENSITIVE VIEW AREA AND KOP NO. 2

Landform	H (5)	**H/M (4)**	M (3)	M/L (2)	L (1)
Vegetation	H (5)	H/M (4)	M (3)	M/L (2)	**L (1)**
Water	H (5)	H/M (4)	M (3)	M/L (2)	**L (1)**
Color	H (5)	H/M (4)	M (3)	M/L (2)	**L (1)**
Adjacent Scenery	H (5)	**H/M (4)**	M (3)	M/L (2)	L (1)
Scarcity	H (5)	**H/M (4)**	M (3)	M/L (2)	L (1)
Modifications*	H (2)	H/M (1)	**M (0)**	M/L (-2)	L (-4)
Scenic Attractiveness Class B (15)					

Scenic Quality Classifications
A = 19 or more
B = 12 to 18
C = 11 or less

Note: Evaluation score is bold and underlined; H = High; M = Moderate; and L = Low
* Explains cultural modifications present in the landscape, ranging from negative intrusions (-4) to those that complement the scenic quality and promote visual harmony (2)

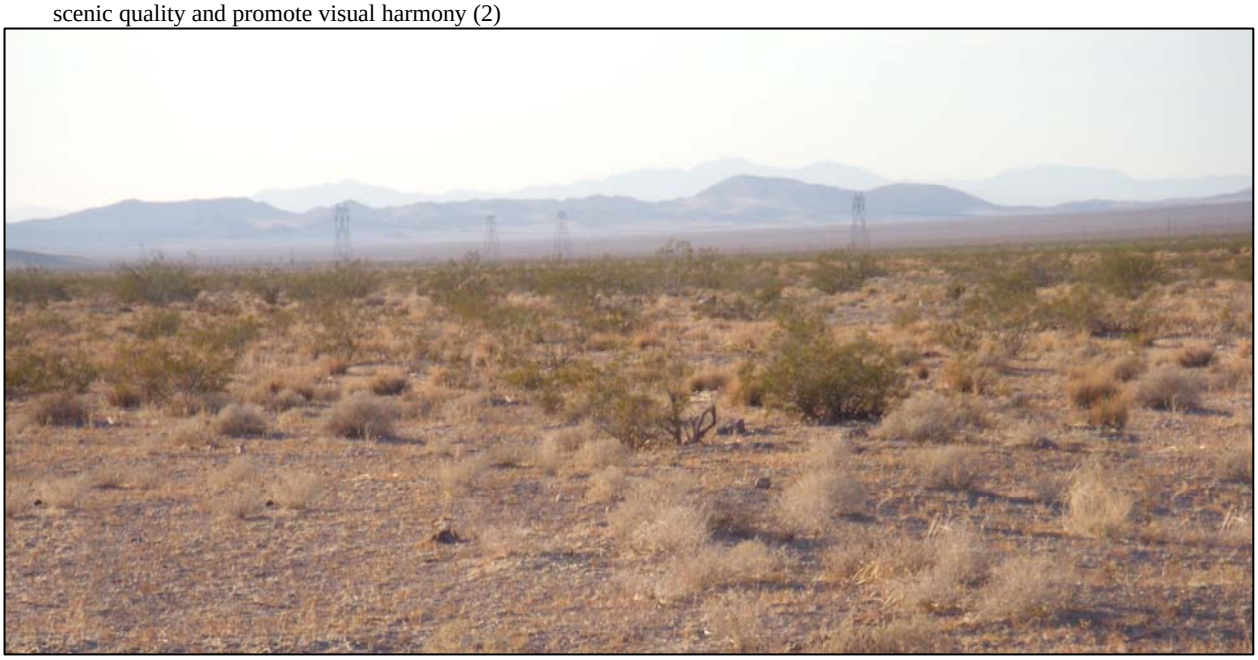
Narrative Landscape Description and Photograph: Sensitive Viewing Area and KOP #2 (Figure 5.13-13, Existing View from KOP #2, see also Figures 5.13-1 and 5.13-2, for KOP location). This image was taken from the Cady Mountains WSA. The Solar One Project Site, in the absence of screening, would be highly visible throughout the WSA due to the elevated, open viewing conditions. The viewshed has been modified with the presence of existing transmission lines, the existing Pisgah Substation, I-40 and Route 66, and the BNSF Railroad in the mid-ground. Flat open expanses of desert can be seen in the view foreground, mid-ground and background and the transportation corridors can be seen in the mid-ground and background. The linear developments interrupt form, and color contrasts between the drab palette of desert wildlands and manmade developments. This landscape is interesting within its setting, but fairly common within the region. The scenic quality from this area can be characterized as Class B.

FIGURE 5.13-8
SCENIC QUALITY EVALUATION FORM FOR
SENSITIVE VIEW AREA AND KOP NO. 3

Landform	H (5)	H/M (4)	**M (3)**	M/L (2)	L (1)
Vegetation	H (5)	H/M (4)	M (3)	M/L (2)	**L (1)**
Water	H (5)	H/M (4)	M (3)	M/L (2)	**L (1)**
Color	H (5)	H/M (4)	M (3)	M/L (2)	**L (1)**
Adjacent Scenery	H (5)	H/M (4)	**M (3)**	M/L (2)	L (1)
Scarcity	H (5)	H/M (4)	**M (3)**	M/L (2)	L (1)
Modifications*	H (2)	H/M (1)	M (0)	**M/L (-2)**	L (-4)
Scenic Attractiveness Class C (10)					

Scenic Quality Classifications
A = 19 or more
B = 12 to 18
C = 11 or less

Notes:
Evaluation score is bold and underlined; H = High; M = Moderate; and L = Low
* Explains cultural modifications present in the landscape, ranging from negative intrusions (-4) to those that complement the scenic quality and promote visual harmony (2)



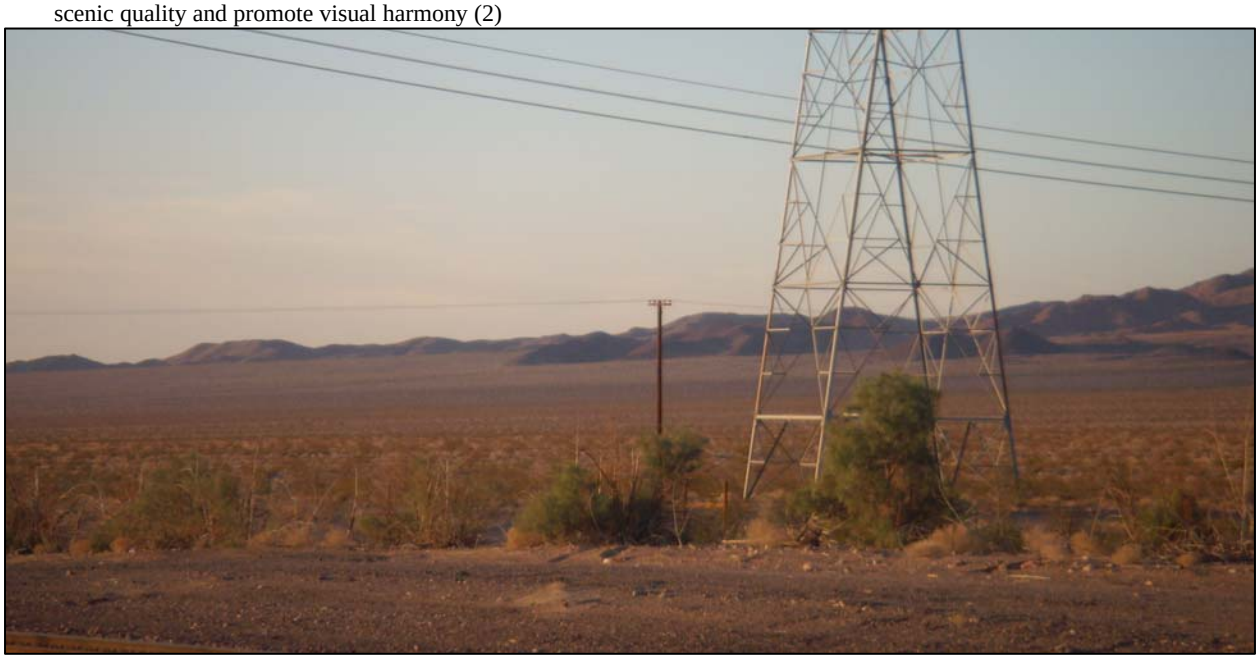
Narrative Landscape Description and Photograph: Sensitive Viewing Area and KOP #3 (Figure 5.13-15, Existing View from KOP #3, see also Figures 5.13-1 and 5.13-2, for KOP location). This image was taken from the nearest residence, with the most immediate views of the proposed Project and transmission lines. Views from this residence are considered potentially sensitive due to the proximity of the Project to the residence. However, since there is only one residence, the level of consideration given to viewer response at this location is lowered. The topography in the foreground and mid-ground of this view is flat and vegetation consists of shrubs and low to the ground plants. The Project and the proposed transmission lines as they join the Pisgah Substation would be highly visible to this residence. It should be noted that the most distinct visual characteristics here are distant views to the Cady Mountains. The scenic quality from this area can be characterized as Class C.

FIGURE 5.13-9
SCENIC QUALITY EVALUATION FORM FOR
SENSITIVE VIEW AREA AND KOP NO. 4

Landform	H (5)	H/M (4)	**M (3)**	M/L (2)	L (1)
Vegetation	H (5)	H/M (4)	M (3)	M/L (2)	**L (1)**
Water	H (5)	H/M (4)	M (3)	M/L (2)	**L (1)**
Color	H (5)	H/M (4)	M (3)	M/L (2)	**L (1)**
Adjacent Scenery	H (5)	H/M (4)	**M (3)**	M/L (2)	L (1)
Scarcity	H (5)	H/M (4)	**M (3)**	M/L (2)	L (1)
Modifications*	H (2)	H/M (1)	M (0)	**M/L (-2)**	L (-4)
Scenic Attractiveness Class C (10)					

Scenic Quality Classifications
A = 19 or more
B = 12 to 18
C = 11 or less

Notes:
Evaluation score is bold and underlined; H = High; M = Moderate; and L = Low
* Explains cultural modifications present in the landscape, ranging from negative intrusions (-4) to those that complement the scenic quality and promote visual harmony (2)



Narrative Landscape Description and Photograph: Sensitive Viewing Area and KOP #4 (Figure 5.13-17, Existing View from KOP #4, see also Figures 5.13-1 and 5.13-2, for KOP location). This image was taken approximately adjacent to the Project site along BNSF Railway weststbound, near the Pisgah substation. This image represents "worst-case" potential views of railway travelers approaching the Project Site from the east. Looking west from this location there are distant views to western mountains and open desert. Travelers are at an elevated viewing position, and would virtually have a direct line-of-site to the Project site and transmission lines. Sensitivity of this view is considered to be moderate due to the limited duration of the traveler view and the presence of existing infrastructure development. The scenic quality from this area can be characterized as Class C.

FIGURE 5.13-10
SCENIC QUALITY EVALUATION FORM FOR
SENSITIVE VIEW AREA AND KOP NO. 5

Landform	H (5)	H/M (4)	**M (3)**	M/L (2)	L (1)
Vegetation	H (5)	H/M (4)	M (3)	M/L (2)	**L (1)**
Water	H (5)	H/M (4)	M (3)	M/L (2)	**L (1)**
Color	H (5)	H/M (4)	M (3)	M/L (2)	**L (1)**
Adjacent Scenery	H (5)	H/M (4)	**M (3)**	M/L (2)	L (1)
Scarcity	H (5)	H/M (4)	**M (3)**	M/L (2)	L (1)
Modifications*	H (2)	H/M (1)	M (0)	**M/L (-2)**	L (-4)
Scenic Attractiveness Class C (10)					

Scenic Quality Classifications
A = 19 or more
B = 12 to 18
C = 11 or less

Note: Evaluation score is bold and underlined; H = High; M = Moderate; and L = Low
* Explains cultural modifications present in the landscape, ranging from negative intrusions (-4) to those that complement the scenic quality and promote visual harmony (2)

Narrative Landscape Description and Photograph: Sensitive Viewing Area and KOP #5 (Figure 5.13-19, Existing View from KOP #5, see also Figures 5.13-1 and 5.13-2, for KOP location). This image was taken from I-40 eastbound, immediately adjacent south of the site 1 mile west of Pisgah substation. Currently foreground and midground views in this area include open expanses of desert while the Cady Mountains can be seen in the background. Automobile travelers are likely to have a short (10-15) duration viewing experience of the project with few interruptions due to a few small hills that briefly block the Project site. Background views to the Cady Mountains will not be blocked. Due to the short duration and presence of infrastructure development in the area, the sensitivity of this view is considered moderate.

The ESIL from this area can be characterized as Class C.

KOP 1: Existing traveler view from eastbound Route 66, looking northeast toward the Project site.

EXISTING VIEW OF PROJECT FROM KOP #1
SOLAR ONE

URS	NO SCALE	CREATED BY: AG	DATE: 11-14-08	FIG. NO: 5.13-11
		PM: WM	PROJ. NO: 27658183.10000	

KOP 1: Simulated traveler view from eastbound Route 66, looking northeast toward the Project site. This photo location is meant to represent "worst-case" traveler views from Route 66.

SIMULATED VIEW OF PROJECT FROM KOP #1
SOLAR ONE

URS	NO SCALE	CREATED BY: AG	DATE: 11-14-08	FIG. NO: 5.13-12
		PM: WM	PROJ. NO: 27658183.10000	

KOP 2: Existing recreational user view from Cady Mountain WSA (approximately 1 mile from the site), looking south toward the Project site.

EXISTING VIEW OF PROJECT FROM KOP #2
SOLAR ONE

URS	NO SCALE	CREATED BY: AG	DATE: 11-14-08	FIG. NO: 5.13-13
		PM: WM	PROJ. NO: 27658183.10000	

KOP 2: Simulated recreational user view from Cady Mountain WSA (approximately 1 mile from the site), looking south toward the Project site. This photo location is meant to represent “worst-case” recreational views.

SIMULATED VIEW OF PROJECT FROM KOP #2
SOLAR ONE

URS	NO SCALE	CREATED BY: AG	DATE: 11-14-08	FIG. NO: 5.13-14
		PM: WM	PROJ. NO: 27658183.10000	

KOP 3: Existing view from closest residence to the east, looking west toward the Project site (approximately 2.0 miles east of Project).

EXISTING VIEW OF PROJECT FROM KOP #3
SOLAR ONE

URS	NO SCALE	CREATED BY: AG	DATE: 11-14-08	FIG. NO: 5.13-15
		PM: WM	PROJ. NO: 27658183.10000	

KOP 3: Simulated view from closest residence to the east, looking west toward the Project site (approximately 2.0 miles east of Project). This photo location is meant to represent “worst-case” residential views.

SIMULATED VIEW OF PROJECT FROM KOP #3
SOLAR ONE

URS	NO SCALE	CREATED BY: AG	DATE: 11-14-08	FIG. NO: 5.13-16
		PM: WM	PROJ. NO: 27658183.10000	

KOP 4: Existing view from westbound BNSF Railway near the Pisgah substation (looking northwest).

EXISTING VIEW OF PROJECT FROM KOP #4
SOLAR ONE

URS	NO SCALE	CREATED BY: AG	DATE: 11-14-08	FIG. NO: 5.13-17
		PM: WM	PROJ. NO: 27658183.10000	

KOP 4: Simulated view from westbound BNSF Railway near the Pisgah substation (looking northwest). This photo location is meant to represent "worst-case" views for railway travelers approaching the Project site from the east.

SIMULATED VIEW OF PROJECT FROM KOP #4
SOLAR ONE

URS	NO SCALE	CREATED BY: AG	DATE: 11-14-08	FIG. NO: 5.13-18
		PM: WM	PROJ. NO: 27658183.10000	

KOP 5: Existing traveler view from eastbound I-40, looking northeast toward the Project site.

EXISTING VIEW OF PROJECT FROM KOP #5
SOLAR ONE

URS	NO SCALE	CREATED BY: AG	DATE: 11-14-08	FIG. NO: 5.13-19
		PM: WM	PROJ. NO: 27658183.10000	

KOP 5: Simulated traveler view from eastbound I-40, looking northeast toward the Project site.

SIMULATED VIEW OF PROJECT FROM KOP #5
SOLAR ONE

URS	NO SCALE	CREATED BY: AG	DATE: 11-14-08	FIG. NO: 5.13-20
		PM: WM	PROJ. NO: 27658183.10000	